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Volume 90 Number 20

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

The Week In Steel

PAGANISM, was the rebuke of a noted clergyman when the value of steel stocks rose after announcement of the second reduction in steel wage rates, but industry terms it confidence. Looking back on 1921, producers observe (p. 13) that demand as measured by the production of ingots began to expand shortly after the second revision of wages, while further impetus was supplied by the third adjustment. And once the mills were on a tonnage basis, deflation of prices eased, earnings were restored, labor within a year regained half its total reduction. Because wage cuts this time have lagged so far behind prices and first quarter financial statements are so fresh in mind, producers are determined to retain any savings.

Steel's Cycle: Tonnage, Prices, Wages

These savings, conservatively estimated on the present low rate of operations, should approximate 60 cents a ton on finished steel products (p. 14), and will become more pronounced as production increases. On the basis of STEEL's analysis of production for 1931, such a curtailment of costs would have been worth $11,000,000. . . . Not only have producers resolved to hold these savings, but they also are taking the offensive, remembering that past concessions have not conjured up any business. Semifinished steel is advanced $2 per ton for the third quarter (p. 45); there are rumors heavy finished steel may be put up $1. . . . A bold, constructive move is that of cold finishers (p. 14) in putting their product on a single price basis.

1931 Imports Equal 237,000 Work Weeks

Producers continue to train their big guns on foreign competition. Due to imports, American steel workmen in 1931 lost 237,000 weeks, with the ore, coal, brick and kindred supply interests suffering proportionately, is the charge (p. 15) of a trade association executive. . . . Representatives of the American Iron and Steel institute and of individual producers, appearing before the house ways and means committee (p. 14), have strongly favored the Hawley bill to equalize tariff duties according to depreciation in foreign currencies. . . . On the matter of marketing foreign reinforcing bars, importers and domestic makers have come to grips (p. 14). "Tantamount to an embargo," importers complain; "costs only 5 cents a ton," mills rejoin.

Even Proletariat Adept at Log-Rolling

Reciprocity is a basis for trading which surmounts all barriers of language and fluctuating exchange. Belgium having agreed to purchase manganese ore from the Caucasus (p.

Tapping a blast furnace; one of a series of photographic studies made at the Pueblo, Colo., plant of the Colorado Fuel & Iron Co.

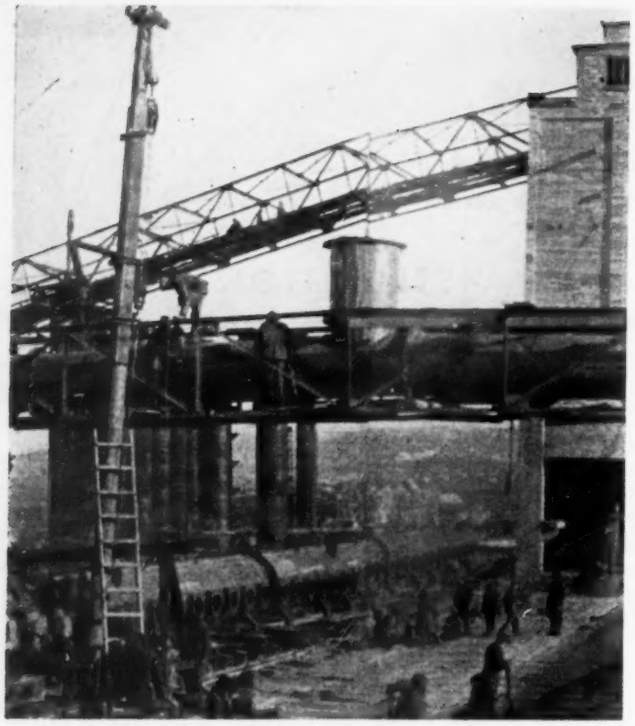


Photo Economic Review of Soviet Union

Part of a by-product coke installation at the soviet's Magnitogorsk steelworks in the Urals

15), the soviet government in turn is preparing to place large steel orders in Belgium. . . . For the Belgian mills this may prove an offset for the loss of British business, due to the new British tariff (p. 59). . . . As Russia puts her new blast furnaces and open hearths in operation she will become an important factor in world trade in scrap (p. 15), an American engineer is convinced.

Price Now Star Auto Salesman

The green pastures of the automobile industry—the low-price field—now originating over 60 per cent of all motor car production and stimulating the industry in spite of the lethargy in medium and high-price lines, is attracting more competition. At Detroit it is understood (p. 20) that General Motors will bring out a new six, stripped of all frills, to be priced lower than any automobile today, while Hudson-Essex is grooming a 4-cylinder entry in the same market. General Motors, convinced that the low-price field is an opportunist one benefiting from present economic conditions, also is preparing to administer a tonic to its Buick, Olds, Pontiac lines.

Pipe Stores as Well as Conveys Gas

Two 40-foot sections of 24-inch steel pipe electrically welded, with a wall thickness of 7/16-inch and closed at the ends with elliptical heads ¾-inch thick, comprise the helium gas storage equipment at the naval air station at Sunnyvale, Calif. (p. 32). Each of these 85 "tanks" weighs 6 tons; the storage pressure is 750 pounds per square inch. . . . Another novel use of electrically welded pipe is for electric heating elements (p. 38), the tubing containing the elements and the insulator.

Physical Chemistry Way to Better Steel

Improved open-hearth furnace operation and more dependable steel are two benefits of the study of the physical chemistry of steelmaking (p. 34) undertaken in 1926 by the Metallurgical Advisory board, Pittsburgh, and now completed. . . . Another approach to better steel is through a paper, "A Modern Conception of Steel Quality," one of six to be presented at the spring meeting of the American Iron and Steel institute in New York Thursday (p. 16). Economics of the steel industry, taxation of iron ore, testing, production of stainless steel, use of blast furnace and coke oven gas—these are subjects to be treated by capable executives and engineers.

Hold Heat Tolerance to 2 Degrees

Automatic control in a southern galvanizing plant maintains the temperature of zinc in an 80-ton galvanizing kettle within 2 degrees plus or minus (p. 30). Twenty-two of the 36 gas burners are under automatic control; best results are attained with a zinc temperature of 850 degrees Fahr. . . . In an electric furnace for annealing sheets, even temperature and ease of extracting and charging heat are accomplished (p. 38) by a lining of light-weight refractory brick. . . . For many processes and products the fuel fired car-type heating furnace in steel mills and foundries has no equal, and in modern heat treating plants changes in design (p. 27) have eliminated some handicaps considered inherent in this type of furnace.

Holding Steel Rate Now a Feat

Unremunerative as an operating rate of 24 per cent is, the fact that the mills have held it for three consecutive weeks with indications of continuing it this week is encouraging (p. 53). This rally puts production on the best basis since early March. . . . Structural steel inquiry is brisk (p. 50), led by 25,000 tons for grade crossing eliminations on Long Island. . . . Bulk freighters on the Great Lakes are moving more coal than ore (p. 53). In April no ore was received at Lake Erie ports, but dock balances April 1 at 5,517,051 tons were 100,000 tons greater than a year ago.

Gain in Output Sequel to Wage Cut—if 1921 Repeats

STEEL ingot production should begin to rise, steel prices should take a definite turn upward within five or six months, and steel wages should be restored at least in part within 12 months, now that wages as well as prices have been deflated—if the industry's experience in 1921-22 is repeated.

All three factors—production, wages and prices—have maneuvered into the same relative position they occupied in 1921 just prior to the revival in steel demand, which soon restored both prices and wages.

Steel prices now are, and have been for more than a year, below the lowest point reached in 1921, so that the 15 per cent wage reduction, in effect May 15, following the 10 per cent reduction of Oct. 1, 1931, is not likely to exert as strong a depressing influence on prices as did the wage cuts in 1921.

The industry reduced wages three times in 1921, and after each prices moved to new lows. The three reductions in 1921 cut wages back 26 per cent; the two this time have amounted to 24 per cent.

Following the first reduction in May, 1921, STEEL's iron and steel price composite in one month dropped $1.50 a ton. Following the second in July, it immediately fell $2.20; and within one month after the third, in August, this composite was off 60 cents additional. Prices did not tend to stabilize during this period of wage adjustments, and from the beginning to the end, which took a total of 10 cents an hour off wage rates, the price composite slumped $8 a ton.

Following the 10 per cent reduction last October prices continued to move downward. A feeble reaction set in in March and April, but STEEL's composite today is $1 a ton below the Oct. 1 level. The whole movement of wages and prices in this later period indicates that the industry itself rather than the wages of its workers has borne the brunt of prolonged and drastic price pounding.

Cuts Precede Tonnage Gain

Immediately following the second wage cut in July, 1921, ingot production began to increase. The third cut in August, with prices then still at the bottom, seemed to supply fresh impetus to production. Output increased 38 per cent from September to October. From then on, except for a seasonal letdown in December, there followed a continuous gain in the volume of business, up to midsummer, 1922.

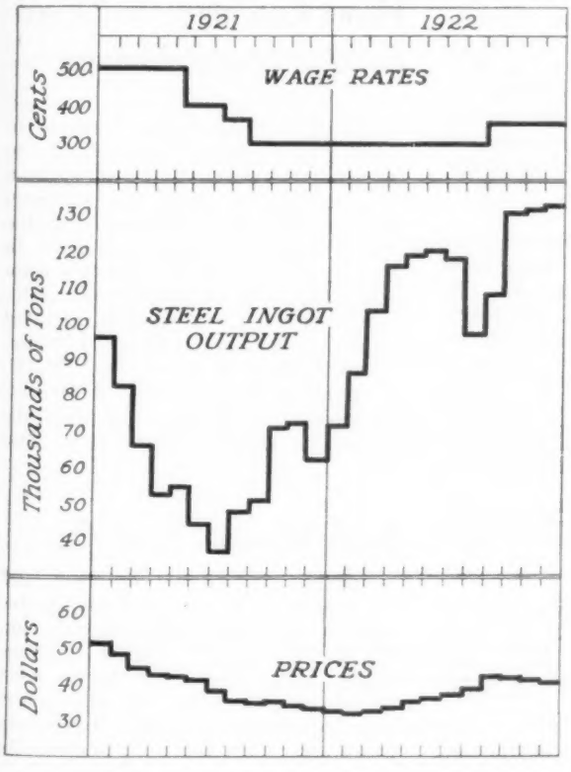
With mills obtaining tonnage, prices began to move up in February, 1922—five months after the third wage cut. Prices moved steadily upward to a high point in September, 1922; and it was in that month that wages were increased 20 per cent.

The only positive indication that can be drawn from the experience of 1921 and that of other depression periods is that business must increase in volume, and must afford some profit before the tide can turn for wages. Therefore, the cut in wages this time may well prove to be a temporary expedient to accelerate business, which in the long run will redound to the benefit of both capital and labor.

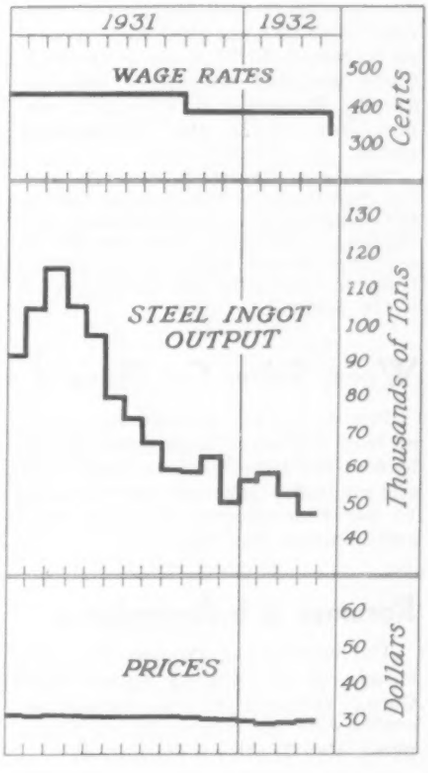
The three wage reductions in 1921 amounted in all to 26 per cent; the two this time, to 23.4 per cent. Yet the hourly rates today, after the second trimming, are 33.7 cents for 10-hour men, compared with 30 cents for the same class after the third cut in 1921.

The 12-hour day was abolished in August, 1923, and labor then placed on an 8-hour day basis was paid at the rate of 50 cents, which rate continued in effect up to Oct. 1, 1931, when it was reduced to 45 cents. The same class now reduced 15 per cent will receive 36¾ cents an hour. For eight hours, therefore, the laborer now will be paid $2.94, only 6 cents less than he could have received for ten hours at the low point in 1921.

A saving of at least 60 cents a ton in the cost of producing finished



TREND of steel wage rates, daily output of steel ingots, and STEEL'S *iron and steel price composite, 1921-22 and 1931-32. Chart at the left shows the reaction of prices and output following wage reductions 11 years ago; chart at the right, the parallel movement of these three factors so far on the downward slide. In 1921 production stepped upward immediately following the second and third wage reductions. This gave volume and lifted prices. Within 12 months wages were restored 20 per cent. The effect of wage reductions on current prices should be less drastic than in 1921, because they already have been deflated more than in that year*



steel will result from the 15 per cent reduction. This figure is said by practical steel men to be conservative, based on the present low rate of operations.

STEEL showed by actual survey (Jan. 4, 1932, p. 138) that there are approximately 4.14 man-hours of direct labor in producing all the materials for and manufacturing a gross ton of steel in ingot form. With the wage rates then in effect the total labor cost was about $1.64. A reduction of 15 per cent brings this cost down 24.6 cents, which checks with the actual saving as determined last week by a large independent steel producer.

This interest's labor cost in converting ingots to sheet bars or billets is 35 cents a ton—a saving here of 5.25 cents. For rolling billets into common steel bars the cost is $2 a ton; the saving in this instance being 30 cents. These two items, plus 24.6 cents, give a total of 59.8 cents, accruing to steel companies, from raw materials to bars.

Wide Variance in Costs

Costs in manufacturing finished steel show wide variation, not only for products but also for plants, depending on equipment and operations. Especially in times such as these labor costs are likely to show extreme fluctuations from week to week—doubling in some instances. The estimated saving is based on the assumption that production will go no lower. If it drops, unit labor costs will continue to rise.

Notwithstanding the United States Steel Corp.'s salary reduction in August and wage reduction in October last year, its payroll for the year prorated with finished steel manufactured increased $3.38 a ton over 1929. Costs mounted as output was reduced. Referring to this in its report for 1931, the Corporation stated:

"The curtailment in payrolls arising therefrom, to the close of December, amounted to approximately $3,991,000 . . .However, they met but in part the impost on earnings arising from an extremely low output, at reduced prices."

Wage, Salary Cut General

Practically all leading producers of iron and steel have followed the lead of the United States Steel Corp. and made reduction of approximately 15 per cent effective in wage rates and salaries May 16.

Resumes at Independence

Universal Atlas Cement Co., subsidiary of the United States Steel Corp., resumed manufacturing operations at its Independence, Kans., plant, May 2, after a shutdown.

Cold-Finished on Single Price Basis

A SINGLE price—at present 1.70c, base Pittsburgh, Chicago, Cleveland and Buffalo—for cold-finished steel bars and shafting in shipments of 10,000 pounds or more of a size and grade to one destination is promulgated in a revised extra card effective May 16.

For smaller shipments, also of a size and grade to one destination, the following quantity extras have been adopted: Less than 3000 pounds, $2.50 per 100 pounds; 300 to 499 pounds, $2; 500 to 999 pounds, $1.50; 1000 to 1499 pounds, 90 cents; 1500 to 1999 pounds, 60 cents; 2000 to 3999 pounds, 40 cents; 4000 to 5999 pounds, 20 cents; 6000 to 9999 pounds, 10 cents.

Extras for size for rounds, from 11/16-inch to 4⅜-inch are increased; similar extras on hexagons from 1 5/16-inch to 2¾-inch are decreased. Extras for cutting are revised; those for accuracy are uniformly lower; those for turned and polished steels are slightly higher. The standard manufacturing tolerances for production are now identical with those for shafting.

The Business Week In Washington

STRONG support for the Hawley bill, to adjust tariff duties in conformity with fluctuations in foreign currencies, was offered May 12 before the house ways and means committee by representattives of the American Iron and Steel institute and steel producers.

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President Hoover has vetoed—and veto has been sustained—the Democratic tariff bill. No changes in rates were proposed, but the President's authority to adjust rates under flexible provisions of the present tariff law was revoked. There will be no tariff changes at this session except for any duties that may be included in the tax bill.

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The house has again passed the Muscle Shoals bill and it now goes to the senate for action.

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Increased British Indian protective steel duties have been prolonged until March 31, 1933, according to the department of commerce.

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Ways and means committee of the house has adversely reported all soldiers bonus bills for the time being.

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Special appeal will be made on the floor of the senate for a manganese import tax, while the revenue bill is up for discussion, according to Senator Shortridge, of California.

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Hearings have begun before interstate commerce commission on effect of 6-hour day on the railroads.

Differ on Marking Imports Of Reinforcing Bars

Washington—Representatives of importers of steel reinforcing bars here have requested F. X. A. Eble, commissioner of customs, to reverse a recent decision holding that each bar be marked with the country of origin.

Importers contended that the "containers" are marked and that the cost of marking each bar separately would be prohibitive. These importers also claimed that American manufacturers are taking this method of trying to exclude foreign concrete bars.

Domestic interests stated that marking of the foreign product is being done in American mills at 5 cents on each ton of bar which is being sold at $26. They further argued that a wire band around the bundles of imported bars could not be called a "container," and they pointed out that this wire is generally broken and discarded soon after the bars enter the country.

Name Committee To Digest Building Material Forum

A committee of experts has been asked by the American Institute of Steel Construction, New York, to consider the discussion and make a recommendation following a forum on constructing residences with the use of modern building materials, in New York, May 24-25. On this committee are: D. Everett Waid, architect; Fred T. Llewellyn, United States Steel Corp., Andrew J. Eken, Starrett Bros. & Eken Inc.; H. H. Murdock, Jardine Murdock & Wright, architects; Christine Frederick, director, Applecroft Experiment Station.

Track Material Rates Cut

Washington—Rates on iron and steel rails and railway track material, in carloads, from Huntington, W. Va., to certain points in Kentucky and Tennessee have been found unreasonable but not otherwise unlawful by the interstate commerce commission. Reasonable

rates have been prescribed, in the case of the West Virginia Rail Co. against the Chesapeake & Ohio railroad.

Testing Materials Society Nominates New Officers

Cloyd M. Chapman, consulting engineer, New York, has been nominated for president of the American Society for Testing Materials for the coming year.

For vice president, W. H. Bassett, metallurgical manager, American Brass Co., Waterbury, Conn., has been named.

Nominations for members of the executive committee are as follows: J. O. Leech, assistant metallurgical engineer, Carnegie Steel Co., Pittsburgh; H. A. Gardner, chemical engineer, Institute of Paint and Varnish Research, Washington; J. C. Ramage, engineer of tests, Southern Railway Co., Alexandria, Va.; J. T. MacKenzie, chief chemist, American Cast Iron Pipe Co., Birmingham, Ala.; and H. S. Vassar, laboratory engineer, Public Service Electric & Gas Co., Irvington, N. J.

Results of a mail ballot will be announced at the annual meeting of the society in Atlantic City, N. J., June 20-24, although nomination virtually assures election.

Financial News of Steel Industry

PITTSBURGH Screw & Bolt Corp., Pittsburgh, reports a net loss of $250,141 for the first quarter. Current assets, including cash of $724,839, totaled $5,273,399 against current liabilities of $356,913.

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Great Northern Iron Ore Properties, St. Paul, earned $1.41 a certificate in 1931 before depletion charges, against $2.05 in 1930.

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National Enameling & Stamping Co., Granite City, Ill., has reduced its capital stock from 200,000 to 158,857 shares, and is lowering the outstanding stated value from $15,591,800 to $5,738,750 by retiring 41,143 shares held by the company and reducing the par value of outstanding shares from $100 to $50.

Belgium-Soviet Reciprocate

Russia will place orders for steel in Belgium in return for purchase of several hundred thousand tons of washed Caucasian manganese ore by Belgian consumers, states the department of commerce. Luxemburg has bought 50,000 tons of Russian manganese ore.

Sheet Distributors Told Imports Menace Industry

PHILADELPHIA—Analyzing the seriousness of the import situation to domestic producers of iron and steel, George H. Charls, president, National Association of Flat Rolled Steel Manufacturers, told the 21st annual convention of the National Association of Sheet Metal Distributors, here May 11-12, that last year 237,000 American steel workers lost a full week's pay due to importations.

Of this number, 28,846 were affected by the receipt of 45,000 tons of flat rolled steel. In addition, ore and coal miners, railroad labor, fire clay and limestone employes and others were injured in varying degrees. The railroads lost 55,080 cars of freight, Great Lakes mining and shipping interests 1,035,986 tons of ore, coal operators 898,966 tons of coal, refractory manufacturers 4,439,340 brick.

Seeks Adjusted Duties

Mr. Charls, urging support of the Hawley bill to adjust duties to compensate for depreciation in foreign currencies, approved the action of New Jersey and Maryland in ruling against the use of foreign steel. He also urged closer contact between the mill and the distributor, believing that a constructive sales campaign would double the maximum tonnage that has ever moved through jobbing channels in one year, which is 750,000 tons.

Declaring that this country still is by far the richest in the world, with national assets of 380 billions and an annual income of 89 billions, F. O. Schoedinger, Columbus, O., president of the association, attributed present industrial difficulties to an economic maladjustment which can be overcome by hard work, closer co-operative action and keener interest in governmental affairs. He lauded the work of the Reconstruction Finance Corp. and deemed as imperative the balancing of the national budget.

F. J. McNeive, W. F. Potts Son & Co. Inc., Philadelphia and chairman of the association's sheet steel committee, while recognizing much constructive work by producers in the distribution of their products, believed the mills make a mistake in inaugurating changes in sales policies without first consulting distributors.

Mr. McNeive pointed to the growth in certain markets of the sale of galvanized seconds, and urged close control of the distribution of this off-grade material by the mills. The association later passed a resolution approving the action of many mills which are now stenciling their second grade material for identification. Discussion revealed that seconds constitute about 5 to 7 per cent of the normal production of a galvanized sheet mill. The suggestion that the mills might be able to remelt their off grade material at a saving as compared with the present plan of selling it was regarded as of doubtful value.

A committee was named to meet with a mill group, yet to be appointed, to discuss the distribution of second grade galvanized sheets. Mr. McNeive suggested the establishment of a central agency that control of seconds might better be regulated.

The outlook in terne plate continued to trouble some members. Production dropped from 807,000 base boxes in 1929 to 336,000 in 1931, with a further 25 per cent decline indicated by sales so far this year. Nevertheless, at least one distributor reported terne plate in growing favor by architects and builders in his district.

A. W. Howe, of the J. M. & L. A. Osborn Co., Cleveland, was elected president to succeed Mr. Schoedinger, who retires after serving five years. W. H. Bowe, of the Herrick Co., Boston, succeeds Mr. Howe as vice president.

Sees Russia in Role of Heavy Buyer of Scrap

Russia will soon become a substantial customer for scrap steel in the United States, it was predicted by A. M. Morton, engineer, Arthur G. McKee & Co., Cleveland, and formerly of the Wheeling Steel Corp., at a meeting of the Cincinnati chapter of the Institute of Scrap Iron and Steel, May 10.

Mr. Morton, who was one of the American engineers engaged by the Soviet government to build its steel industry under the 5-year plan, has just returned from Russia and illustrated with films the building of blast and open hearth furnaces and the completion of one of the largest steel projects in the world in Russia.

Key Boiler Schedule Grows

Key Boiler Co., St. Louis, has expanded its working schedule due to receipt of orders from oil refineries.

Who's Who on Program of Iron, Steel Institute

Authors of Technical Papers At Spring Meeting in New York, Thursday, May 19

AT a time when costs are pertinent, "Mining Taxation in the Lake Superior District" has a special appeal. Its author, Clarence B. Randall, was born at Newark Valley, N. Y. Graduation

Clarence B. Randall

Julius Strassburger

from Harvard university in 1912 was followed by three years in the Harvard law school. Seven summers spent at Ishpeming, Mich., directed his attention to the iron ore industry. From 1915 to 1925 he was with the Cleveland-Cliffs Iron Co., Cleveland, excepting two years overseas as captain of infantry. Mr. Randall joined the Inland Steel Co., Chicago, in 1925, and in 1930 became vice president in charge of production of raw material, supervising the company's iron ore and coal mines, limestone properties, and vessels.

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RESEARCH monopolizing his entire career qualifies Dr. Robert F. Mehl, assistant director of research, American Rolling Mill Co., Middletown, O., to present "Nondestructive Testing Methods of the Iron and Steel Industry". After graduating from Franklin and Marshall college in 1919 he became identified with chemistry activities at Princeton, receiving his Ph.D. in 1924. From 1923 to 1925 he was professor of chemistry at Juniata college; National reasearch fellow at Harvard 1925-27; and in 1927 joined the naval research laboratories, before going with the Rolling Mill company. Dr. Mehl is the author of numerous technical papers and is the translator of Professor Tammann's "States of Aggregation" by D. van Nostrand, 1925.

E. C. Smith

George H. Charls

□ □ □

A SUBJECT which the depression and its concomitant struggle for business have rendered poignant will be discussed by Herbert W. Gra-

(*Please turn to Page* 55)

—Photo by Bacharach

H. W. Graham

Dr. Robert F. Mehl

Industrial Men in the Day's News

Charles S. Belsterling, Vice President, United States Steel Corp.

FOR 20 years he has been tireless in the direction of traffic matters for the Steel corporation and its subsidiaries.

BOOKS on traffic are from his pen. In general law practice he was priviliged to associate with the late Charles MacVeagh.

DEEP interest in historical and genealogical subjects is evidenced by membership in many societies and written contributions.

IN the recent appointment of Charles S. Belsterling as vice president, as announced in the May 2 issue of STEEL, the United States Steel Corp. has selected a man from within its own ranks, who has assumed the laboring oar in many of the more important industrial railroad and rate cases of the past 20 years. It was here, in fact, that Mr. Belsterling won his professional spurs.

Born in Philadelphia in 1874, Mr. Belsterling received his preliminary training in the public schools of that city and later studied law and was admitted to practice in both Pennsylvania and New York and before the Supreme Court of the United States.

In the early nineties Mr. Belsterling began his career in the steel trade in the executive offices of the A. & P. Roberts Co., in Philalelphia, which owned and operated the Pencoyd Iron Works, Pencoyd, Pa. In 1899, when that company was absorbed by the American Bridge Co., now a subsidiary of the Corporation, he became head of the transportation and traffic department of the Bridge company and was occupied, among other things, in the handling of cases for that company and other subsidiaries of the Corporation before state and federal commissions.

Among cases in which Mr. Belsterling has actively participated, which established principles now recognized in the law of carriers, may be mentioned: Consolidation of railroads; Panama canal cases; Birmingham Southern vs. United States; Wire rod case; United Zinc Smelting Corp. vs. railroads; Rate structure investigation Part 6; Car spotting charges; National Tube Co. vs. United States; By-Products Corp. vs. railroads; Mystic Iron Works vs. Boston & Maine; United States vs. Wharton & Northern; Leasing of Duluth & Iron Range railroad to the Duluth, Missabe & Northern; Mount Hope Mineral railroad vs. director general; Isthmian Steamship Lines vs. United States; Assigned car case; Adriatic Mining Co. vs. Chicago & North Western; Slag and frozen ore cases; United States Steel Products Co. vs. director general.

In 1914 he was taken to New York by the late Judge Reed, then president of the Bessemer & Lake Erie railroad and a director and counsel of the Corporation, and put in charge of all the Corporation's litigated matters pertaining to railroads, steamships and rates, under the title of general commerce attorney, which position he held until his recent appointment as vice president.

For many years Mr. Belsterling was associated in the general practice of law with the late Hon. Charles MacVeagh, one of the first three incorporators of the Corporation, its first general solicitor, and its assistant general counsel prior to his appointment as United States Ambassador to Japan.

He is the author of several treatises—"Transit Privileges," "History of the Industrial Railways", and others.

Mr. Belsterling is identified with many business, social and patriotic organizations. He is a member of the American Iron and Steel institute; the Association of the Bar of the City of New York; Metropolitan Club of New York; Union League club, Philadelphia; Duquesne club, Pittsburgh; and the Pennsylvania Society of New York.

His patriotic society affiliations include the Colonial Society of Pennsylvania, Society of Colonial Wars of the State of New York, Sons of the Revolution, and The Society of the War of 1812.

Mr. Belsterling also is prominent in the Genealogical Society of Pennsylvania and the New York Biographical and Genealogical society, and has contributed various articles on genealogy.

AMBROSE N. DIEHL, since August, 1930, a vice president of the United States Steel Corp., at New York, on June 1 becomes president of the Columbia Steel Co., subsidiary of the Corporation owning and operating steel plants and conducting the business of the Corporation on the Pacific coast. His headquarters will be at San Francisco and he succeeds A. T. deForest, who retires under Corporation's pension plan.

Mr. Diehl, whose career was sketched in STEEL for Sept. 4, 1930, was born in York county, Pennsylvania, Oct. 20, 1876. He is a graduate of Pennsylvania state college. In 1899 he became identified with the Duquesne labora-

tories of the Carnegie Steel Co., being associated with the Carnegie company rising to vice president in 1925 until his advancement to the Corporation's headquarters in New York in 1930.

Mr. deForest, a native of Cleveland, joined the H. P. Nail Co., Cleveland, in 1883, and when that company was absorbed by the American Steel & Wire Co. he embarked upon a career with the Corporation that remains unbroken until his retirement next month. He has been on the Pacific coast for the Corporation since October, 1903. His career was sketched in STEEL for July 10, 1930.

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Ward B. Perley, president, Canadian Steel Corp. Ltd., a subsidiary of the United States Steel Corp., with plants at Ojibway, Ont., will retire July 1 under the Corporation's pension plan.

Mr. Perley, who is 69, entered the iron and steel business through the Franklin Iron Works Co., Columbus, O., in 1881. In 1892 he went with the Cherry Valley Iron Works Co., Leetonia, O., remaining until 1899 when he joined the National Steel Co., later absorbed by the United States Steel Corp. From 1911 to 1916 Mr. Perley was assistant to James A. Farrell, then president of the Corporation. In the latter year he became vice president of the Canadian Steel Corp. and in 1927 was made president.

J. W. Seens, president of the Canadian Bridge Co. Ltd., Walkerville, Ont., also a subsidiary of the Corporation, will succeed Mr. Perley as president of the Canadian Steel Corp., but will also continue with the Bridge company.

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Max W. Babb, vice president and general attorney of the Allis-Chalmers Mfg. Co., Milwaukee, since 1913, has been elected president to succeed Gen. Otto H. Falk, who becomes chairman of the board. Mr. Babb, born at Mount Pleasant, Iowa, July 28, 1874, was trained in the law. His association with Allis-Chalmers dates from 1904, when he was named attorney. In April, 1928, he was elected a director of the company. In 1930 he was chosen a director of the federal reserve bank for the seventh (Chicago) district.

General Falk, who is nearing 67, has been president of Allis-Chalmers since 1913. His military career includes long service with the Wisconsin National Guard and service in the Spanish-American war. When he retired in 1911 he was brigadier general. His financial interests with Milwaukee companies have been numerous, and in 1924 he was presented with a loving cup for being "Milwaukee's foremost citizen".

W. A. Thompson, controller, and William Watson, works manager, have been elected vice presidents. R. Dill was chosen secretary-treasurer, J. A. Keogh controller and assistant secretary, H. W. Storey attorney, D. A. Stewart and A. F. Rolf assistant treasurers.

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E. L. Cord, president, Cord Corp., has been elected president of Aviation Corp., Chicago.

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John H. Locke, formerly manager of operations, General Steel Castings Corp., Eddystone, Pa., and Granite City, Ill., has been elected a vice president. All directors and other officers have been re-elected.

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C. B. Cole, president of the Tool Equipment Sales Co., Chicago, was elected vice president of the Service Tool Die & Mfg. Co. Of the latter company, Carl Danielson is president, Christian Schell is secretary, and John G. Crotsley is treasurer.

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H. J. Ritter, assistant secretary, Norma-Hoffmann Bearings Corp., Stamford, Conn., has also been made sales manager. To his new duties he brings the experience of years as sales engineer and, later, as manager of the New York sales office of the corporation.

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Gerard Swope, president, General Electric Co., Schenectady, N. Y., was awarded the medal of the National Institute of Social Sciences at the institute's annual dinner in New York, May 12 in recognition of his plan for stabilization of industry by means of a guarantee of employment.

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Joseph L. Block, vice president, Inland Steel Co., Chicago, has been made a member of a steering committee of 15 for the new Construction Industries council, recently organized in Chicago to attain more co-operation in questions affecting the local building industry and to establish construction prices that would put employer, employe, and the building public on a more equitable basis.

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W. H. Stewart, since 1923 vice president of the Bethlehem Steel Export Corp., New York, in charge of the Bethlehem Steel Corp.'s foreign business, has been elected president of the Pacific Coast Steel Corp., San Francisco, a subsidiary of Bethlehem. He succeeds D. E. McLaughlin, who retired some months ago.

S. M. Bash, formerly assistant to the vice president, has been chosen vice president of the Export corporation.

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J. S. Tritle has been elected vice president in charge of operations of the Westinghouse Electric Supply Co., wholesale distributor of Westinghouse products to electrical dealers, contractors and industrial establishments. He will assume his new duties immediately in addition to his present position, vice president and general manager of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

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Harry O. McCully, formerly president, Erie Bolt & Nut Co., Erie, Pa., has been named general sales manager of the Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y. He became identified with the Erie Bolt & Nut Co. following discharge from the army after the World war, and since 1930 has been president. He is a graduate of the University of Michigan, class of 1913.

James M. Dill, for the past 12 years manager of steel castings sales of the Erie Forge Co., Erie, Pa., has resigned to become manager of sales for the Erie Bolt & Nut Co. He succeeds Mr. McCully in the latter capacity.

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A. T. Kathner, of the firm of Kathner & Damiron, consulting engineers, Paris, France, is arriving at New York on the ILE DE FRANCE May 31 with a party of European steel plant managers and engineers for a study of the latest American processes and machinery for rolling mills. The following countries will be represented in this group: France, England, Germany, Belgium, Sweden, Italy and Czechoslovakia.

Mr. Kathner, who is well known in American steel plants, will be remembered by many from his former connection with the Duraloy Co., of Pittsburgh, the American licensing agents for the Kathner furnace in United States and Canada. During this visit the address of the group will be the Ohio hotel, Youngstown, O.

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R. E. W. Harrison has resigned as sales engineering director of the Cincinnati Milling Machine and Cincinnati Grinders Inc. Mr. Harrison has been with the Cincinnati Milling Machine Co. since 1926, at which time he joined the organization as chief engineer and director of Cincinnati Grinders Inc. Prior to 1926 he was with the Churchill Machine Tool Co., England, as assistant general works manager, and later commercial manager.

Mr. Harrison at this time terminates his second year in office as chairman of the Cincinnati section of the American Society of Mechanical Engineers, but will continue his connection in the society as secretary-member of the executive committee of the Machine Shop Practice division. His other activities in connection with engineering standardization projects will be continued.

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George W. Whitehead, assistant general manager, Bethlehem Steel Co. plant at Lackawanna, N. Y., was elected a director of the Buffalo

chamber of commerce for a 3-year term.

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William M. McFate has been appointed assistant manager of sales of the tin plate division of the Wheeling Steel Corp., Wheeling, W. Va. He has been connected with the Wheeling company for the past several years, and formerly was associated with the Detroit Steel Corp., Weirton Steel Co., and the Trumbull Steel Co.

Gear Makers Name New Officers

E. W. MILLER, Fellows Gear Shaper Co., Springfield, Vt., was elected president of the American Gear Manufacturers' association at the sixteenth annual meeting of the organization in Cleveland, May 12-13. Mr. Miller succeeds B. F. Waterman, Brown & Sharpe Mfg. Co., Providence, R. I., who has held the post of president for two years.

John Christensen, Cincinnati Gear Co., Cincinnati, was elected first vice president; A. A. Ross, General Electric Co., West Lynn, Mass., second vice president; and J. Harper Jackson, Pittsburgh Gear & Machine Co., Pittsburgh, treasurer.

Announcement was made of the resignation of T. W. Owen, for ten years secretary of the association with headquarters in Cleveland. J. C. McQuiston, formerly general advertising manager, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., and long active in the Gear Makers' organization, has been appointed to the vacancy. Headquarters will be moved to Pittsburgh.

With the passing of an amendment to its constitution, the association established an academic membership classification for those engaged in the teaching or study of gears in institutions of learning. Until the present, only gear manufacturers were entitled to membership.

Corrigan, Newton Negotiate

Negotiations for a merger of the Corrigan, McKinney Steel Co., Cleveland, and the Newton Steel Co., Monroe, Mich., and Newton Falls, O., are in progress. The Corrigan, McKinney company is a source of supply of sheet bars for the Newton company, manufacturer of sheets.

Los Angeles Notes Gains

The continued uptrend of certain basic factors, however slight, justifies the feeling of encouragement that economic conditions are better, states Los Angeles commerce chamber.

Obituaries

DONALD M. RYERSON, 47, chairman of the board of Joseph T. Ryerson & Son Inc., Chicago, ended his life May 8 at his home in Lake Forest, Ill. He had relinquished active management of the business some time ago and had become interested in problems of national importance, working so continuously that his health became impaired. He had been under physician's care for some little time and had been endeavoring to recover from a nervous breakdown that occurred last October.

Mr. Ryerson became an active worker in the Ryerson company in 1906, progressing through various departments of the business to the office of chairman. In business life he quickly won the warm regard and respect of his associates in the steel producing and consuming industries. During his active years he proved a brilliant leader, not only for his own organization but also for the entire warehouse industry as well.

Mr. Ryerson was educated at Yale. Prior to the war, he conceived the idea of the Four-Minute Men, a national organization of speakers that was taken over by the government for use in the Liberty loan and other campaigns. The success of the plan won the personal commendation of President Wilson. A few days before our entry into the war, he also personally contracted for a submarine chaser which was turned over to the government. He then attended the first reserve officers' training class at the naval academy, Annapolis, and served as a lieutenant on the United States destroyer SIGOURNEY off the coast of France.

He is survived by the widow, two children, and in the business by two brothers, Edward L. Ryerson, president of the company, and Joseph T. Ryerson, who is treasurer.

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LeRoy Bush, 47, for over 20 years president, Romann & Bush Pig Iron & Coke Co., St. Louis, died May 4.

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Frederick Lee Heughes, 82, president of F. L. Heughes & Co., structural steel contractors, Rochester, N. Y., died May 7.

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Charles Hugh M. Kennedy, 37, vice president of the Robert Mitchell Co. Ltd., iron and brass founder, Montreal, Que., died in New York May 4.

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James D. Callery, director, Union Switch & Signal Co., Swissvale, Pa.; Westinghouse Air Brake Co., Wilmerding, Pa., and Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., died at his home in Pittsburgh, May 8. He was president of the Diamond National bank of that city.

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Andrew P. Weston, 52, inspection manager of the Pittsburgh Testing Laboratories, Pittsburgh, for 20 years, died at Pittsburgh recently.

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Robert J. Rode, 59, affiliated with the pattern shop of the Jones & Laughlin Steel Corp., Pittsburgh, for the past 42 years, died at Pittsburgh, May 8.

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Norman Arter, 27, draughtsman of the Arter Grinding Co., of Worcester, Mass., of which his father, William Arter, is president, died May 11.

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Franklin G. Neal, St. Louis general manager of the St. Charles, Mo., branch of the American Car & Foundry Co., died recently. He formerly was associated with the Pressed Steel Car Co. in Pittsburgh.

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James A. Botsford, 70, treasurer of the Pittsburgh Malleable Iron Co., Pittsburgh, since 1912, died at Pittsburgh, May 9. He had been connected with the company for the past 30 years.

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Cady B. Durham, 58, who retired from the Buick Motor Co., Flint, Mich., in 1929, but who at one time was works manager and later vice president, died at Miami, Fla., May 10.

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F. F. Landis, who in 1889 with his brother A. B. Landis began the manufacture of Landis grinders under the name of Landis Bros., and in 1897 incorporated the business as the Landis Tool Co., Waynesboro, Pa., died May 2. During recent years neither of the brothers was active in the company.

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George Marsden Sr., 66, for many years engaged in the machine shop and foundry industry in Janesville and Beloit, Wis., died May 8. Originally he owned the Badger State Machine Co. and the Rock River Machine Co., Janesville. In 1906 he moved to Beloit and established the businesses now known as the P. F. Mork Foundry Co. and the Hendley-Whittemore Co., machinery and tool builder.

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Richard D. Little, 62, for 30 years a patent solicitor for the United States Steel Corp., at Pittsburgh, died at Braddock, Pa., May 10. Mr. Little was born at Johnstown, Pa., in 1870 and became a draftsman in the Edgar Thomson steel works in 1885. Later he began his association with the United States Steel Corp. Among survivors are his sister, Mrs. I. Lamont Hughes.

MIRRORS of MOTORDOM

DETROIT

AUTOMOBILE production tends each week to become more highly concentrated in the low-price range, now dominated by Ford, Chevrolet and Plymouth, with the logical consequence that more competition is being attracted to this field and medium-price car manufacturers are being energized to regain their market.

In the usual course of experimentation, General Motors has done considerable work on a four, a six and an eight in the low-price field, but its program appears to be simmering down to this: A six with an engine practically identical with the current Chevrolet but with both engine and body stripped of every gadget, to be priced between $350 and $400.

General Motors, always anxious to keep one lap ahead of Ford, apparently agrees with the opinion that the country has not had a really low-price car, stripped down to bare necessities, since Ford abandoned Model T, and hence proposes to offer what might be termed "pure transportation."

Build New Six at Pontiac

This new six, it is understood, will be manufactured in the Oakland-Pontiac plant at Pontiac, under the direction of W. S. Knudsen, who is so largely responsible for Chevrolet's success. There still is talk of an extremely low-price eight by General Motors, also that it may manufacture the Opel, its German car, for the American market, but at the moment this six, which is not unlike Plymouth's "thrift" line, appears to have the right-of-way.

Hudson-Essex has progressed beyond the usual experimental stage with the lowest-price car it has ever offered. This is understood to be a four, to be priced at least as low as the Ford four. Willys-Overland, with John N. Willys again in the saddle, has plans for model changes which are being held in obeyance pending a decision by the new regime. A mail order house is again considering selling a $300 to $350 car off its floors.

Meanwhile, the big three—Ford, Chevrolet and Plymouth—are pushing their advantage. Last week, on a 5 day basis, Ford was assembling between 900 and 1000 of the eights and about 1000 of the fours daily. For all practical purposes, Ford production may now be reckoned as 2000 units a day, or about 10,000 a week.

Ford June Schedule Near

About May 25 a schedule for June will be adopted, which is certain to be predicated upon a substantial increase over the 40,000 for May. A few days after this schedule is adopted steel will be bought, but this buy will be limited to a three to four week supply and will be rather widely distributed.

While Ford continues to emphasize the eight, great strides have been made with the four. Up to now, relatively more new Fords have been licensed in the Detroit area than in any other, but now the new cars are being pushed out into the country. Foundry losses on the one-piece block for the eight have been cut down. The 2-piece valve is standard.

Chevrolet is proceeding at a gait that indicates it will produce between 50,000 and 60,000 units this month, with Plymouth slowed down a little to about 700 a day, 5½ days a week, including DeSotos, which come off the same line. There is a growing feeling in Detroit that Chrysler is set for a good run on both Plymouth and DeSoto.

It is strength in these three leaders that buoys sentiment in Detroit in the face of further retrenchment by practically all other manufacturers. The high and medium-price cars appear equally hard hit—some like Cadillac-LaSalle are down, others like Packard are operating only 20 hours a week—but Detroit believes Ford, Chevrolet and Plymouth will supply a gradual lift to business.

Ford may be relied upon to increase or maintain production at a substantial rate for at least five months. At present the Ford payroll is about $2,250,000 weekly, and thus Ford will pay out in wages about $50,000,000 over the next 20 weeks. Since Ford business is more widely distributed than any other, an outlay of $50,000,000 in wages by Ford will be spread farther than the same sum by a number of smaller manufacturers.

Incidentally, it can be stated that the higher officials of the Ford Motor Co. now are entirely convinced that the turn in business has been made.

Without inferring that other manufacturers in the medium-price field are not fighting, it can be said that General Motors is laying the groundwork for reclaiming this market. Rarely has there been so much plain speaking as among the "key" men of the Buick, Olds, Pontiac division at Detroit last week.

Must Pull Buyers Back

A few years ago, General Motors was concerned with the problem of pulling the average buyer down to the Chevrolet class. Now, with Chevrolet intrenched in this field and a second low-price car emerging, General Motors is girding itself to lift buyers back to the Buick, Olds, Pontiac field.

Under present economic conditions and with low-price cars as modish and as well equipped as many selling for many hundred dollars more, the low-price car has the call. But

General Motors refuses to believe that when business revives there will not be demand for medium-price cars, somewhat larger and heavier than the extremely low-price range.

General Motors is setting its manufacturing house in order. It seems probable that the production of the Olds will be shifted to the Buick plant, that Pontiac will be made in the Chevrolet plants, that the new low-price six will be made in the present Pontiac plant.

Not only is General Motors drawing parts manufacture from outside interests into its own subsidiaries but it also is concentrating its own parts operations, such as shifting the Muncie Gear Co. from Muncie, Ind., to the Olds work at Lansing.

The reduction in General Motors personnel, drastic as it has been, is continuing. It seems probable that considerable restyling of bodies will be effective with the next series, more changes in bodies than in engines being in prospect.

Less advertising and more sales promotion is another new General Motors policy. There will be more assistance for the dealer, more of an effort to enable him to "close" deals than to swamp his sales rooms with prospects.

Here and There in Industry

HOFIUS STEEL & EQUIPMENT CO., First avenue south, Seattle, established 35 years, has acquired the plant of the Earl B. Staley Co., manufacturer of truck bodies, road oilers and similar equipment. The latter has been in existence about 10 years. Mr. Staley becomes a vice president of the consolidated company. Operations will be centralized in the Hofius plant, which may be enlarged. A truck equipment department will be formed, in charge of Mr. Staley.

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Standard Steel & Rail Co., St. Louis, has moved its offices to 701 St. Louis Mart building, Spruce street and Twelfth boulevard.

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American Cable Co., New York, has licensed the Macwhyte Co., Kenosha, Wis., to manufacture preformed wire rope under its patents.

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L. D. Fisher & Son Corp. has been formed with $25,000 capital to succeed the L. D. Fisher Co., 757 North Broadway, Milwaukee, dealer in iron, steel, brass and other metals.

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Anaconda American Brass Co. Ltd., New Toronto, Ont., has completed an addition to its plant and will start production of brass and copper tubes about July 1.

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Ohio Electric Mfg. Co., Cleveland, has moved its Philadelphia office to 1473 Broad Street Station building. W. G. Ellis is Philadelphia representative.

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Jenkins Machinery Co. has been organized to take over the business of the Jenkins Machine Co., Sheboygan Falls, Wis., manufacturer of woodworking equipment. Mark Hoeper has been administrator of the business for the past year.

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Metalcraft Corp., S. C. McCluney president, St. Louis, manufacturer of metal toys, has installed about $35,000 worth of new machinery and equipment.

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Corben Sport Plane Co., Peru, Ind., Louis F. Schoelkopf, Madison, Wis., president, is moving its plant and offices to Madison, near the airport. O. G. Corben is vice president and general manager.

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Watson Mfg. Co., Buffalo, is to be continued by receivers, pending efforts to sell the plant. The company manufactures metal specialties. A bid of $321,000 for the assets, offered by the Watson Holding Corp., was not accepted by the court.

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Guiberson Corp., Dallas, Tex., manufacturer of oilfield equipment, has leased part of its plant to the newly-organized Guiberson Diesel Engine Co. for the manufacture of diesel engines for aircraft and automobiles. S. A. Guiberson Jr. is president.

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Prosch Boiler Works, 1430 Ash street, Terre Haute, Ind., has been bought by Russell R. Lentz, Jefferson Lentz and Edward Meyer. The plant was established 30 years ago, manufacturing boilers, tanks, stacks and structural steel. New equipment is to be installed.

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James Jordan Ltd. has purchased the business of Chas. C. Kawin Co. of California and will operate at 3220 East Slauson avenue, Los Angeles, under the same management. Previous to 1929 Mr. Jordan was associated as foundry engineer and metallurgist with Chas. C. Kawin Co., Chicago.

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Lincoln Electric Co., Cleveland, has appointed the Great Northern Tool & Supply Co. distributor of its products in Montana and Wyoming. The company has stores at Billings and Kevin, Mont., and Cody and Casper, Wyo. The main office is at Billings.

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Dardelet Threadlock Corp., New York, has licensed the New England Screw Co., Boston, to manufacture bolts, nuts and screws and the Parker & Harper Mfg. Co., Worcester, Mass., to manufacture screw machine products, both with the Dardelet self-locking threads.

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Barber-Colman Co., Rockford, Ill., manufacturer of milling cutters, hobs, reamers and similar products, has established a sales office in Pittsburgh, in charge of William G. Taphorn. It will serve southwestern Pennsylvania and southeastern Ohio.

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Chain Belt Co., Milwaukee, is installing additional heat treating equipment for production of a new alloy metal under license from the Industrial Furnace Corp., Buffalo. A laboratory also has been added in which to carry on experimentation and perform tests on production. G. K. Viall is in charge of this new phase.

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Youngstown Sheet & Tube Co., Youngstown, O., has appointed Palmer Supply Co., 222 Westlake avenue north, Seattle, its agent for the sale of pipe, succeeding the Walworth Co., retired. Standard pipe will be carried in stock. A. G. Oakley, Central building, Seattle, represents the Youngstown company for sheets and other products.

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Farrel-Birmingham Co., 344 Vulcan street, Buffalo, has appointed George L. Hurst, 785 Market street, San Francisco, consulting mechanical engineer, its sales representative in San Francisco territory for the Farrel-Sykes line of gears, speed reducers, gear drives and gear-cutting machines. He has been a representative of the Farrel-Birmingham Co., Ansonia, Conn., and one of its predecessors, Birmingham Iron Foundry, Derby, Conn., for a number of years. J. R. Brown, 2710 First Central Trust building, Akron, O., has been appointed sales representative by the Farrel-Birmingham Co., Ansonia, Conn., to handle sales of the Rafter patent press brake and other mechanical and hydraulic metalworking presses in Middle West territory.

EDITORIAL

Industry Has Stake in Small House Problem

SOMETIMES it is refreshing to get away from the dull monotony of contemplating the short range business outlook and to browse in the broad field of speculation as to what the more distant future holds in store for industry.

Recently at a meeting in Chicago, Franklyn Hobbs, economist, indulged freely in this pastime. He told a group of architects, contractors and engineers that "between now and 1945—and possibly between now and 1943—we will have erected in this country as many cubic feet of building space, as many square feet of floor space and as many square yards of pavement as now exist."

This statement is as astounding as it is courageous, as Mr. Hobbs himself will admit. Yet perhaps it is not as fantastic as it seems at first glance. Economist Hobbs probably did not expect his listeners to accept his prediction that in the next 10 or 15 years the nation will erect buildings equal in volume to those standing today. Yet he was able to say that this very thing was done in this country between 1887 and 1899, and again between 1899 and 1910, and between 1911 and 1922. And, to quote Mr. Hobbs, "we have almost completed the job of repeating this between 1922 and 1933."

While we do not care to concur in this prediction, we believe that the building field offers tremendous opportunities for reconstruction. If it were possible to effect the proper organization of financial, architectural, engineering, contracting and manufacturing forces promptly, one would be safe in saying that building activities offer a hope of leading the country out of the depression.

Present Gloomy Picture Hides Possibilities of Future

Many individuals and companies are dismissing the building field as a hopeless mess because they see the distressing signs of grief caused by real estate speculation. The spectacle of homes and farms being given up to escape taxes or mortgages is alarming. The low percentage of occupied space in office structures, the staggering arrearages in rent for stores and shops and the large number of vacancies in industrial properties present a seemingly hopeless prospect.

But it is not as black as it looks. Even today there are thousands of families with modest savings ready and eager to build homes, but who cannot do so because the necessary small loans cannot be arranged. When business uncertainty has passed and the stability of jobs is assured there will be a big demand for small houses.

Hundreds of thousands of modest dwellings can be sold after definite business recovery sets in if—and only if—the building industry organizes to meet this demand. Many of the old ideas of financing and methods of construction must be discarded. Ordinary workmen must be offered neat, comfortable dwellings for from $2500 to $5000, including the lot. A down payment of several hundred dollars and $25 per month should be sufficient to assure a man with an annual income of $2000 a decent home for his family.

If our financial experts, architects, contractors, labor leaders, suppliers of materials and manufacturers of household equipment will address themselves to the task of providing houses of this kind, they will find a ready market shortly after business turns upward.

Problem of Housing Low Wage Workers Adequately Has Been Neglected

Alert executives of steel companies have maintained a keen interest in the use of steel for residences throughout the depression. Naturally their attention has been focused largely upon homes ranging in cost from $10,000 to $40,000. This was good business from the standpoint of establishing steel as a desirable material for house construction.

That job is about completed. The public has shown a willingness to accept steel. From now on the problem will be one of building up volume. Since demand for new houses will appear first in the small home field, would it not be wise for steelmakers, fabricators and manufacturers of metal products for home construction and use to concentrate on this market?

The housing of many of America's industrial workers is a disgrace. The home of the average laborer in England, France or Germany is far better than that of his brother in America.

We have taught our laboring man to want radios, automobiles, electric lights, etc., while at the same time we have made it most difficult for him to enjoy the comforts of a good home. Isn't it about time that he be offered the same facilities for providing for that fundamental necessity—shelter—as he now possesses for obtaining articles of far less importance?

THE BUSINESS TREND

Tension Easier as Congress Gets Down To Work

BUSINESSS statistics for April show a number of recessions to new low levels for this depression. Daily average production of pig iron and steel ingots were lowest since July, 1921. Unfilled tonnage of the United States Steel Corp. dropped to a new low level for all time. Bradstreet's index of wholesale commodity prices declined 3.2 per cent in April and on May 1 stood at $6.918, the lowest in 33 years.

These comparisons only serve to emphasize the severity of the present situation. Fortunately their effect on business sentiment was discounted in advance. Even the stock market, which is super-sensitive to bear news, reacted only momentarily to the unfilled tonnage report, yet the decline in forward orders was considerably greater than had been expected.

Favorable news is not lacking. The volume of freight traffic in the week ending April 30 was somewhat better than had been expected. There is a growing conviction that when the grain situation can be viewed in proper perspective it will be found that supplies will be far less than had been anticipated. Importation of wheat by Russia now is indicated whereas that country had been considered as an exporter. In the automobile industry Ford production is being stepped up and Chevrolet and Plymouth are holding steady to a brisk pace.

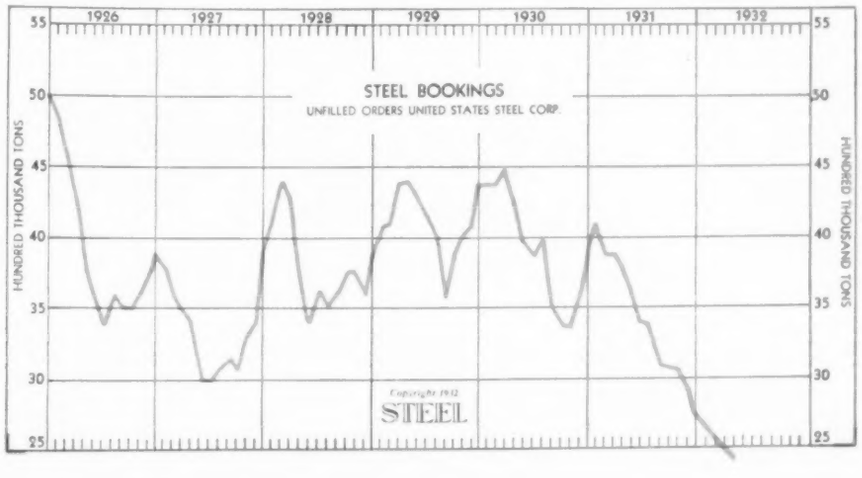
One of the favorable developments in finance is the apparent effort now being made to induce a flow of funds from New York banks back to interior cities, from which they were withdrawn in large amount last fall.

All factors affecting industry now are subordinated to the important measures being considered at Washington. The "big stick," hinted at in this column last week, has been wielded by the President. Apparently the response from the nation has been sufficiently clear in force and in intent to convince congress that taxpayers are tired of political fueds and demand action. At any rate there seems to be a more determined desire in congress to get down to work.

Pressure for Economy Must Continue Until Results Are Assured

Action of the leading steel companies in effecting another reduction in wages—a step that had been under discussion for a long time—had the effect of further emphasizing upon public officials the necessity of economy.

Industry should not release the pressure on congressmen. If the house and senate will settle satisfactorily the problems of economy and taxation, and then adjourn as quickly as possible, the work of reconstruction by the people will go forward more smoothly.



1932
Million Tons

April	2,326
March	2,472
Feb.	2,545
Jan.	2,648

1931
Million Tons

April	3,897
March	3,995
Feb.	3,965
Jan.	4,132

March Auto Output Held At Consistent Rate

Automobile production in the United States in March showed little change from January and February, while Canada made a fairly large gain over the earlier months, according to reports to the department of commerce. The three months total for the United States is slightly more than half that for the corresponding months of 1931. The figures follow:

	—United States—			Canada
1931	Total	Passenger cars	Trucks	Total
Mar.	276,341	230,835	45,096	12,993
3 mo.	668,193	548,529	118,213	29,360
April	336,939	286,252	50,022	17,159
May	317,163	271,135	45,688	12,739
June	250,657	208,955	41,342	6,835
July	218,961	182,927	35,854	4,220
Aug.	187,197	155,321	31,772	4,544
Sept.	140,566	109,087	31,338	2,646
Oct.	80,142	57,764	21,727	1,440
Nov.	68,867	48,185	19,683	1,247
Dec.	121,541	96,753	23,363	2,432
Yr.	2,389,738	1,967,055	416,640	82,621
1932				
Jan.	119,344	98,706	20,541	3,731
Feb.	117,413	94,085	23,303	5,477
Mar.	118,959	99,325	19,560	8,318
3 mo.	355,721	292,116	63,409	17,526

Fabricated Steel Plates Show Steady Decline

Fabricated steel plate production in March showed a steady decline from previous months in all classes, as reported to the department of commerce by 51 identical manufacturers. Comparisons are as follows:

In Tons

1931	Total	Oil storage tanks	Blast furnaces	Miscellaneous
Mar.	31,056	2,538	833	21,697
3 mo.	83,012	8,721	1,019	58,787
April	29,916	7,749	25	17,783
May	26,210	2,411	230	20,370
June	22,806	4,679	356	15,817
July	27,261	4,136	51	18,785
Aug.	24,282	1,138	125	18,331
Sept.	33,473	4,024	254	18,692
Oct.	20,839	1,955	200	16,336
Nov.	18,268	1,755	401	15,058
Dec.	16,442	778	86	13,891
Year	302,509	37,346	2,747	213,850
1932				
Jan.	17,613	4,783	129	12,124
Feb.	17,755	4,115	40	11,777
Mar.	12,564	1,161	150	10,022
3 mo.	47,932	10,059	319	33,923

Fabricated Steel Shapes Make Gain in March

Bookings and shipments of fabricated structural steel, as reported to the department of commerce, shows a gain in March over previous months in 1932, though still below those of the final months of 1931. Comparisons, given below, show a decided falling off from the corresponding months of 1931:

	Bookings		Shipments	
1931	Tonnage	Per cent of capacity	Tonnage	Per cent of capacity
Mar.	178,800	44.7	149,200	37.3
3 mo.	495,600	41.3	472,800	39.4
Apr.	284,800	71.2	158,800	39.7
May	152,400	38.1	145,200	36.3
June	172,400	43.1	159,200	39.8
July	159,600	39.9	180,800	45.2
Aug.	124,000	31.0	167,600	41.9
Sept.	194,400	48.6	149,200	37.3
Oct.	109,200	27.3	143,600	35.9
Nov.	90,800	22.7	111,600	27.9
Dec.	97,600	24.4	122,800	30.7
Year	1,880,800	39.2	1,811,600	37.7
1932				
Jan.	48,400	12.1	65,600	16.4
Feb.	62,000	15.5	78,000	19.5
Mar.	64,400	16.1	82,400	20.6
3 mo.	174,800	14.6	226,000	18.8

Malleable Castings Show Little Change in March

Malleable castings production and orders in March were slightly under those of February, but shipments were a few tons larger, according to reports from 118 establishments operating 130 foundries, to the department of commerce. The general situation showed little change from the latter part of 1931. Comparisons are as follows:

1931	Output, tons	Shipments, tons	Orders booked, tons	Per cent operated
March	35,758	37,092	35,098	35.9
3 mo.	101,499	102,109	101,238	33.9
April	36,682	38,342	36,507	36.3
May	31,964	36,957	28,716	32.1
June	24,248	28,602	22,495	24.5
July	20,223	23,985	19,667	20.0
Aug.	18,821	20,904	18,705	18.9
Sept.	18,485	18,727	17,854	18.6
Oct.	20,444	17,802	18,558	20.4
Nov.	17,984	18,336	18,971	18.3
Dec.	21,503	20,206	19,811	21.5
Year	311,853	325,970	302,522	26.1
1932				
Jan.	22,216	21,572	22,036	23.5
Feb.*	21,578	21,325	19,709	23.1
Mar.**	19,597	21,337	18,046	20.5
3 mo.	63,391	64,234	59,791	22.4

*Revised. **Preliminary.

Steel Furniture Orders In March Show Growth

Orders and shipments for steel furniture and fireproof safes in March, according to figures gathered by the department of commerce, showed slight change from those of February, totals being slightly higher in most classifications. Totals for three months are far below the same months, 1931.

(In Dollars, 000 Omitted)

	Business Group		Shelving	
1931	New orders	Shipments	New orders	Shipments
March	1,487	1,522	455	481
3 mo.	4,805	4,853	1,274	1,285
April	1,424	1,481	408	423
May	1,306	1,305	506	409
June	1,272	1,221	452	449
July	1,092	1,074	328	371
Aug.	1,010	1,057	307	358
Sept.	1,059	1,188	304	310
Oct.	1,114	1,078	304	310
Nov.	910	956	267	226
Dec.	911	1,075	295	298
Year	14,903	15,287	4,447	4,440
1932				
Jan.	966	977	267	269
Feb.*	751	807	212	229
March	794	780	264	259
3 mo.	2,512	2,565	744	757

*Revised.

February Enameled Ware Output Best in Months

Enameled steel metal ware production in February showed the best totals since September, 1931, according to figures reported to the department of commerce. The totals for two months of this year compare fairly well with those of the corresponding two months in 1931. Comparative figures follow:

In Dozens

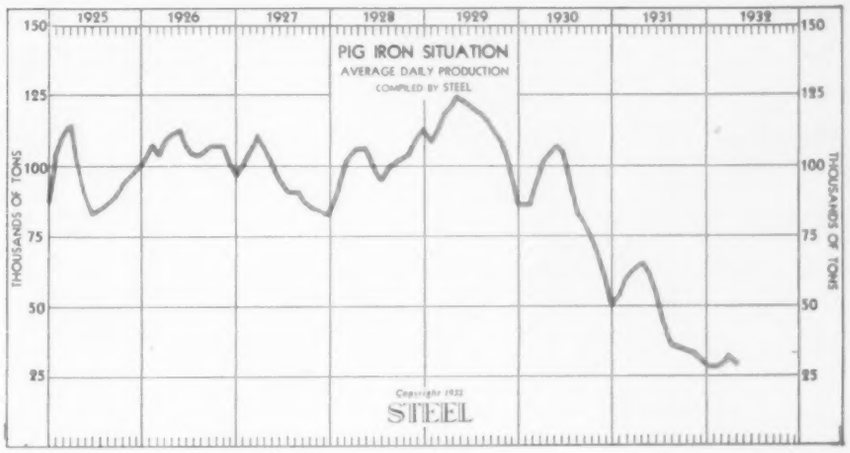
1931	Total	White	Gray and Colored
Feb.	289,205	96,812	192,393
2 mo.	566,437	181,729	374,708
March	312,916	103,375	209,541
April	281,339	99,218	182,121
May	264,953	106,091	158,862
June	232,672	81,588	151,084
July	246,858	83,483	163,375
Aug.	251,544	90,546	160,998
Sept.	307,068	97,635	209,433
Oct.	255,782	81,866	173,916
Nov.	197,080	62,904	134,176
Dec.	233,267	54,565	178,702
Year	3,189,916	1,043,000	2,096,916
1932			
Jan.	198,627	57,973	140,654
Feb.	270,198	82,899	187,299
2 mo.	469,076	141,118	327,958

Employment Off in March

Washington—Decreased employment and payrolls is shown in reports of the bureau of labor statistics for the iron and steel and allied industries for March compared with February.

The bureau received reports from 223 iron and steel mills which gave their March employment at 207,636, a decrease of 1.9 per cent from February and of 19.2 per cent from March, 1931. The March weekly payrolls in these plants amounted to $3,358,422, a decrease of 4.3 per cent from February and 51.6 from March, 1931.

	1932	1931
April	28,524	66,986
March	31,194	65,448
Feb.	33,122	61,114
Jan.	31,336	55,337
	1931	**1930**
Dec.	31,694	53,732
Nov.	36,727	62,128

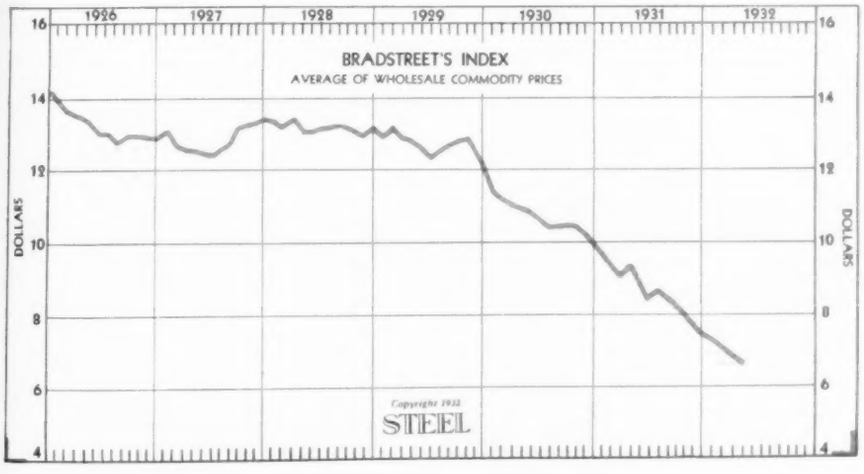


April Pig Iron Production Is Lowest on Record

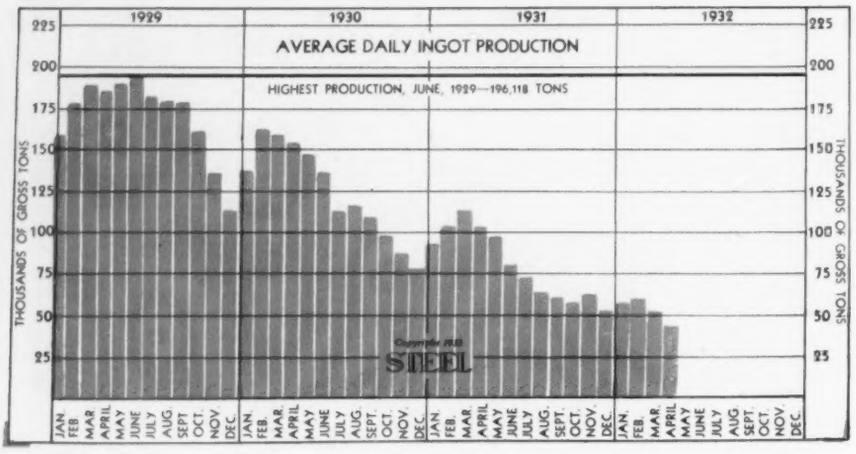
The average daily output of coke pig iron in April was 28,524 tons, a decrease of 2670 tons or 8.5 per cent from the 31,194-ton rate of March. The current daily output is the lowest since the record low of July, 1921, when the average daily production totaled 27,892 tons. Total output in April amounted to 855,734 gross tons, compared with 967,015 tons for March, or a drop of 11.5 per cent. The previous all-time low point was 864,642 tons in July, 1921. Production in April last year was 2,009,582 tons. Relating production to capacity, the operating rate of April was 19.8 per cent, compared to 21.7 per cent in March and 23.0 per cent in February.

Commodity Price Index Drops for Ninth Consecutive Month

Despite all efforts to check the gradual fall in prices of wholesale commodities, the trend continues on its downward course. For the ninth consecutive month Bradstreet's price index has declined. On May 1 it stood at $6.91. This current figure represents the lowest level in 33 years or since May, 1, 1899. Last year on May 1 the index was quoted at $8.91 and for the the same period in 1930 it registered $10.93. During 1928, the accompanying chart reveals a period of fluctuation, but from November of 1929 to the present time there has been a steady downward trend, excepting for three slight advances, the last of which occurred August 1, 1931.



	1932	1931
May 1	$6.91	$8.91
April 1	7.15	9.22
March 1	7.31	9.71
Feb. 1	7.52	9.31
Jan. 1	7.73	9.51
	1931	**1930**
Dec. 1	7.91	9.84



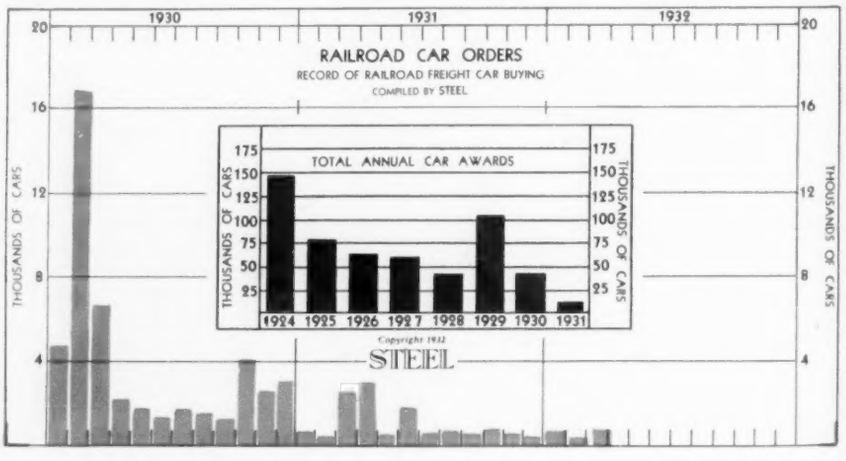
	1932	1931
April	47,685	104,711
March	52,253	115,138
Feb.	58,382	104,265
Jan.	56,203	91,063
	1931	**1930**
Dec.	50,092	76,136
Nov.	63,747	88,489

Steel Ingot Rate Off in April; Lowest Since July, 1921

With an operating rate of 22.52 per cent, the average daily output of steel ingots in April dropped to 47,685 gross tons, a shrinkage of 4568 from the average for March, while in April last year daily output totaled 104,711 gross tons. The current rate marks a new low for this depression and broke through all previous rates back to July, 1921. According to the American Iron and Steel institute the total output of 1,239,811 tons in April brought the 4-month total for 1932 up to 5,571,478 tons. This represents 26.31 per cent of capacity. In the same period of 1931, total production was 10,677,124 tons or 48.5 per cent of capacity.

No Freight Car Awards in April; 1932 Orders Negligible

There were no awards placed for domestic freight cars during April. This is the first time this has happened since August, 1921. In April last year awards totaled 2798 cars compared to 1997 for the same period in 1930. The chart clearly shows that thus far this year the purchase of railroad cars has been negligible, January and March being the only two months when car orders were over the one hundred mark. This disappointing volume is in keeping with the policy of strict economy forced upon the railraods. Builders see little early improvement in sight and volume purchases of rolling stock undoubtedly will be delayed.



	1932	1931
April	0	2,798
March	105	2,166
Feb.	35	50
Jan.	159	100
	1931	**1930**
Dec.	11	2,729
Nov.	35	2,621
Oct.	780	4,116

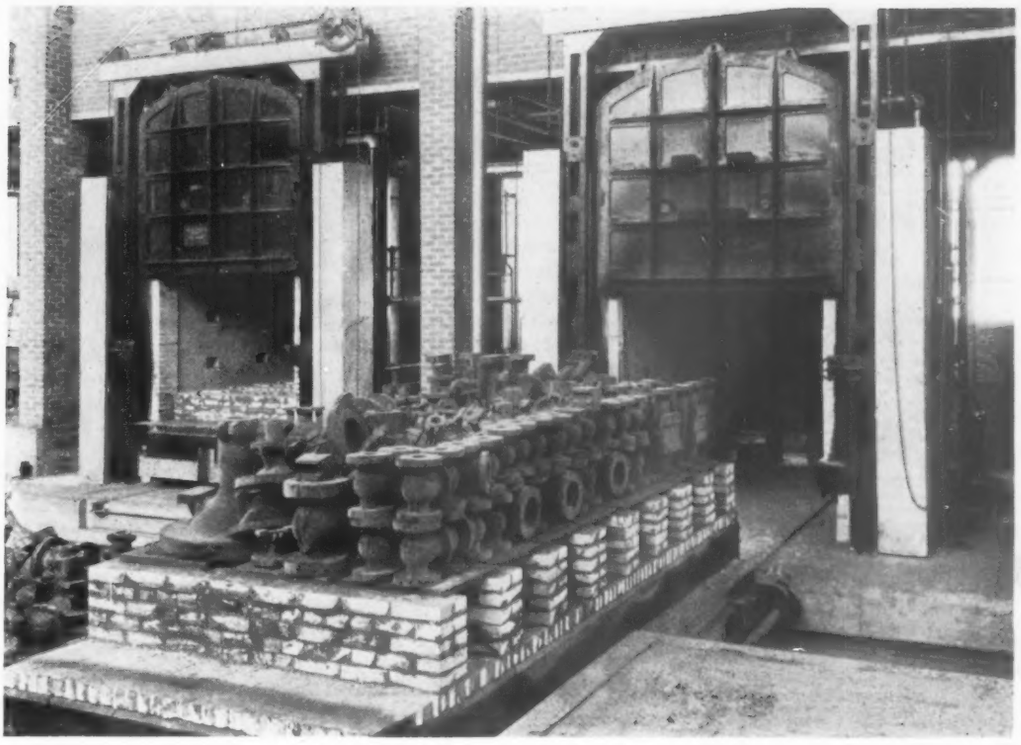


FIG. 1 — Single-ended oil-fired car-type annealing furnaces equipped with transfer car and three furnace cars. The furnaces are used for annealing and nitriding valve bodies

New Fuel Fired Car-Type Furnaces Embody Latest Design Features

BY R. R. LAPELLE

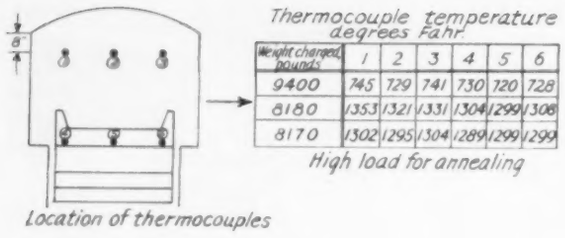
Furnace Engineer, Fuel Division,
The Electric Furnace Co., Salem, O.

PROFITABLE industrial operations at present low-price levels constitute a problem, the answer to which in many cases lies in a thoughtful and careful modernization program for both plant and equipment; and in most plants no more fruitful field for modernization exists than the heat treating department. Recent developments in certain branches of heat treating are worthy of attention.

For many processes and products the familiar car-type heating furnace so commonly used around foundries and steel mills never has been surpassed by any type developed. For handling large quantities of material so shaped that it cannot be handled continuously or automatically, the car-type furnace has offered the most economical and most convenient equipment yet devised.

However, in spite of this fact the usual design of car-type furnace possesses certain inherent disadvantages such as lack of temperature uniformity, particularly at the lower temperatures; slowness of heating due to the comparatively cold car top; and difficulty in handling the material on to and off of the car. These difficulties have been solved in an interesting manner in a recent installation of seven gas fired furnaces at the Ellwood City, Pa., plant of the National Tube Co., by The Electric Furnace Co., Salem, O. Fig. 3 shows a front view of the seven furnaces, together with the cooling and loading racks. These furnaces are all 6 feet in width, four being 48 feet and three being 42 feet in length.

One of the novel features of this installation lies in the method of firing. The charge is supported above the actual car top level by means of alloy bucks, which in turn are carried by refractory cross piers on the car top. This construction permits the arrangement of the burners in such a way as to cause all of the combustion to take place below and underneath the charge. This feature has dual advantages. It not only assures close temperature uniformity at all temperatures from 400 to 1650 degrees Fahr., but also, because of the elimination of the usual cold car top refractories, shortens materially the time required to bring the charge

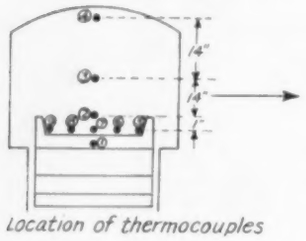


Thermocouple temperature degrees Fahr.

Weight charged, pounds	1	2	3	4	5	6
9400	745	729	741	730	720	728
8180	1353	1321	1331	1304	1299	1308
8170	1302	1295	1304	1289	1299	1299

High load for annealing

TEST NO. 1



Thermocouple	Temp. degrees Fahr.
1	491
2	504
3	509
4	503
5	490
6	488
7	491
8	496
9	486

Low load for drawing

TEST NO. 2

FIG. 2 — Table showing high and low temperature uniformity tests made on car-type furnaces illustrated below

in the furnace to the correct temperature.

Another interesting feature in connection with this installation lies in the ingenious method of temperature control utilized. The furnaces are divided into four longitudinal zones, each separately controlled by a potentiometer-type recording controller. The controller on each zone controls two three-position control valves which regulate different groups of burners within the zone, so arranged that each group, operating alone, will maintain uniformity within the furnace chamber. When operating at the higher temperatures, both groups of burners are used; at intermediate temperatures the three-position valves regulate both burner groups to maintain the temperatures desired; at the lower temperatures one group of burners is turned entirely out and the other group maintains the desired temperature.

Through this arrangement it is possible to operate the furnaces at temperatures varying from 450 to 1650 degrees Fahr. without any manual readjustment of burners, valves or controls. The operator thus can operate the furnaces at any desired temperatures merely by resetting the dials on the controllers, without the necessity of carefully readjusting the burners, turning certain ones out, etc. The burners used are of the high-pressure, automatic proportional mixing type and maintain a constant ratio of gas and air for any rate of firing, thus permitting any desired atmosphere to be maintained within the furnace.

The table in Fig. 2 shows the uniformity obtainable at various temperatures in the furnaces just described and indicates the accurate temperature control which may be obtained with this method of firing.

Special Handling Crane

Another interesting feature of the National Tube Co. installation lies in the special handling crane used for moving the tubes onto and off of the furnace cars. This crane is shown in Fig. 4 about to lower a load of tubes onto the car. It consists of a number of C-shaped lifting fingers suspended from a structural framework in such a way as to match up with the openings between bucks on the car tops. This crane picks up a charge of tubes from the car top, places it on the cooling racks shown in the foreground in Fig. 4, moves to the loading table, picks up a fresh charge and places it on the car.

In order to minimize the time during which the car is outside the furnace, the installations are equipped with high-speed electric rack and pinion type car pullers and electric door raising mechanisms. With this equipment it is possible to open the door, remove the car from the furnace, unload and load the car, return it to the furnace and close the door again, all within a space of 3 minutes. This exceedingly rapid loading and unloading results in an appreciable reduction in the

FIG. 3 (Above)—Battery of seven gas fired car-type furnaces handling tubes up to 47 feet in length. Fig. 4 (Right) — Special loading and unloading crane used in connection with these furnaces

heat lost from the car and furnace during the operation, and considerably increases the daily output obtainable from each furnace.

The furnaces just described are used for annealing tubes of assorted sizes prior to and between cold drawing passes and for final anneal after finishing the drawing operations. In special cases retorts utilizing an atmosphere of hydrogen gas are used, thus obtaining a bright annealed product without pickling. The same crane described above is used for handling the retorts on and off the cars.

Fig. 5 shows another car-type furnace embodying some of the special features involved in the previously described installation. This furnace is a double-ended, gas fired car type, installed in the plant of the Truscon Steel Co., Cleveland, and is utilized for heat treating bus and truck frames, being provided with the special quench tank and handling crane shown in Fig. 6. The quench is of the oil type and is provided with internal water cooling coils for holding the oil at the desired temperature, and a motor driven centrifugal pump for providing violent agitation of the quenching oil about the parts being quenched.

Oil Fired Furnaces

The furnaces thus far described have been arranged for firing with natural gas. However, the principles involved may be adapted where oil must be used as fuel. Fig. 1 shows two single-ended oil fired car-type furnaces installed in the plant of the Chapman Valve Co., Indian Orchard, Mass.

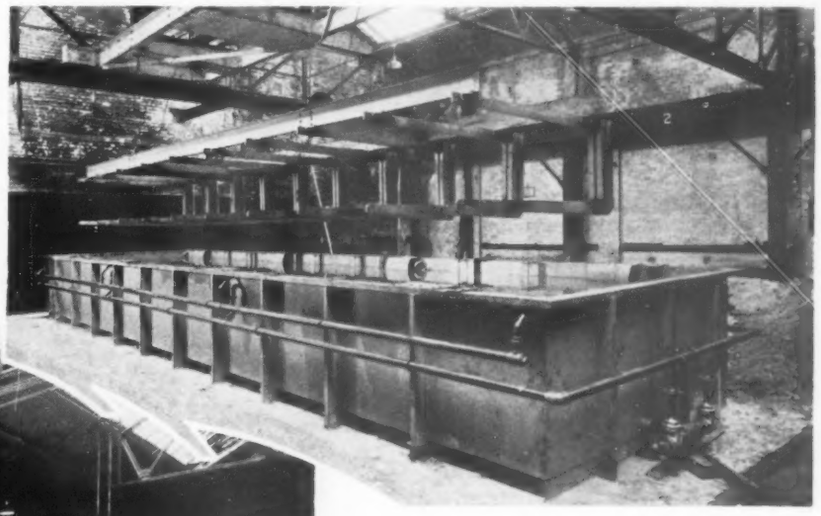
To insure complete continuity of operation these furnaces are provided with a transfer car and three furnace cars. As in the case of the gas fired furnaces, the firing is so arranged as to eliminate entirely the cold spot in the center of the car usually obtained in any car-type furnace. This results in a high degree of temperature uniformity and a rapidity of heating.

These furnaces are used for annealing and nitriding valve bodies and pipe fittings. Even at the low temperature required for nitriding, usually difficult to obtain in an oil-fired furnace, the temperature uniformity is excellent. Difficulties usually encountered due to clogging, oil dripping, etc., when operating oil burners at low temperatures have been eliminated through the use of three-position control valves, special small capacity oil burners, and special pilots on the burners.

Close Temperature Control

High or low temperature operation is carried out at the will of the operator, merely by resetting the control instruments and without any manual adjustments of burners, blast gates or needle valves.

Through the development of these new designs convenient car-type furnace equipment now is available, with its advantages of low-alloy cost, convenience of handling, etc., and permitting uniformity of temperature distribution and precision of heat treatment. The saving from the modernization of this item of heat treating equipment, resulting through the lessening of rejections, production of superior work, lessening of costs of handling and supervision, is such as to repay rapidly the cost of the equipment involved.



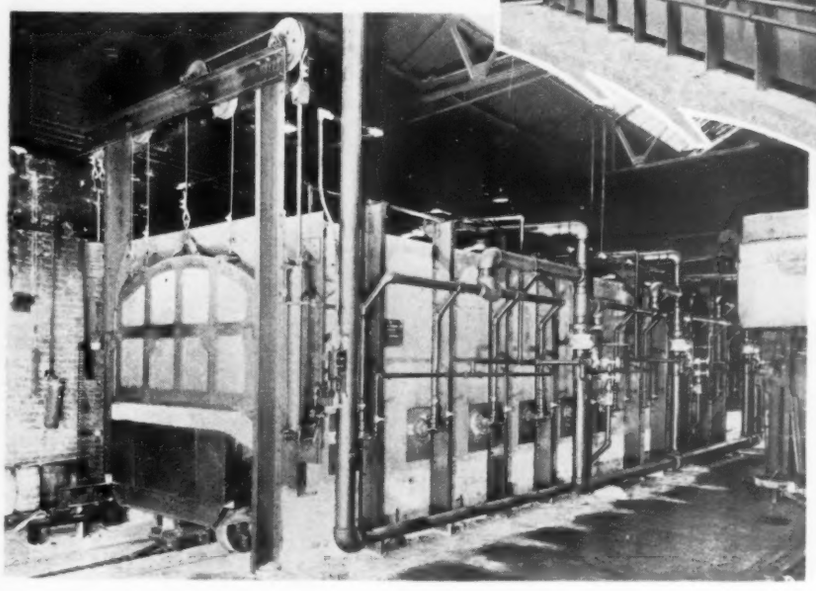


FIG 5. (left)—Double-ended gas-fired car-type furnace used for heating truck and bus frames. Fig. 6 (above)—Special quench tank and handling crane used in connection with this furnace

Steel Founders Plan for Cost Exchange Bureau

A brochure, relating briefly the history of its uniform cost and accounting work and stressing the value of using the uniform plan approved by the industry, has been issued by the Steel Founders Society of America, 932 Graybar building, New York.

The society's future plans for its cost work are set forth in considerable detail and among projects outlined is the operation of a cost exchange bureau. Under this plan steel foundries will contribute detailed estimated costs on specific casting jobs, basing their figures on the society's uniform cost accounting methods. From these individual estimates the society will develop composite estimated costs for each job, giving also the high and low figures for each element of cost.

In this way it is expected a fund of information ultimately will be accumulated which will reveal to individual foundries the classes of business they are best prepared to handle and also show them where cost reductions may be effected. It is stated that a number of steel foundries have already adopted the new uniform cost plan and are enthusiastic regarding its results.

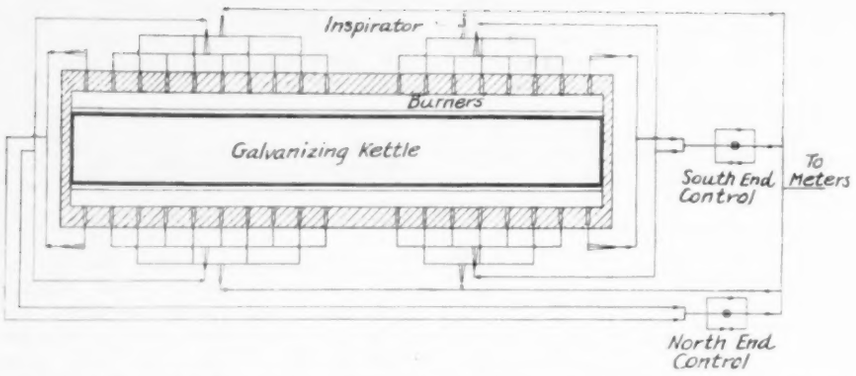


Fig. 1—Burner layout and fuel supply through control valves for 30-foot 80-ton galvanizing kettle

Controls Galvanizing Bath Within 2-Degree Limit

BY W. M. CLARK

Manager, Bessemer Galvanizing Works

AUTOMATIC temperature control of galvanizing kettles is a comparatively recent development but a feature which has proved effective in reducing fuel consumption, prolonging kettle life, conserving zinc and improving quality of product. Therefore, in designing a new 80-ton kettle a few months ago, the Bessemer Galvanizing Works, Bessemer, Ala., decided to incorporate equipment which would maintain the bath at a constant temperature. This kettle was built and installed and how well the task was performed is indicated by the fact that no difficulty is experienced in controlling the temperature of the zinc to plus or minus 2 degrees Fahr.

Investment of $11,000

The kettle itself, manufactured by Columbiana Boiler Co., Columbiana, O., measures 30.5 feet long, 3.5 feet wide and 4 feet deep and was designed and installed by engineers of the Bessemer company. Complete, it cost approximately $5000, including the small extra outlay for special burners, piping and accessories necessary for automatic temperature control. The 80-ton bath represents an investment of about $5000, making a cost of $10,000 for kettle and bath. Temperature control equipment required about $1000, but for this additional expenditure of 10 per cent, the company figures it has obtained minimum cost for kettle depreciation and bath upkeep and is guaranteed uniformly high quality of output.

Fig. 1 shows the piping from the temperature control meters at the right to 36 burners, 18 of which are spaced along either side of the kettle. Fourteen of these burners, 7 on each side of the kettle, operate at predetermined settings independent of control. The other 22, eleven on each side, receive their fuel through two separate three-position control valves. One of these valves controls the fuel supply to 12 burners at the north end of the kettle, and the other control valve regulates the fuel to 10 burners at the south end. Thus, of the 36 burners, 22 are under automatic control—12 through the automatically-operated valve controlling the north end and 10 through a similar valve controlling the south end. The burner and piping layout was designed by the Surface Combustion Corp., Toledo, O.

Installation Details

A cross section of the kettle is shown in Fig. 3 and an actual installation view is shown in Fig. 2. The latter view shows the end floor cover plate removed to expose the piping and gives a clear idea of the method of installing the fuel system to the gas burners. The kettle was not in operation when the photograph was taken and the accumulation on the surface of the molten zinc is zinc oxide or zinc ash. At the far end of the kettle, the ash has been skimmed back for 4 or 5 feet to show the bright surface of the zinc as contrasted with the dull gray surface of the oxidized zinc in the center.

Fig. 2 also shows two iron-constantin thermocouples, which connect to a remote automatic temperature controller, suspended in the two left-hand corners of the bath, one at the south end in the foreground and one at the north end in the

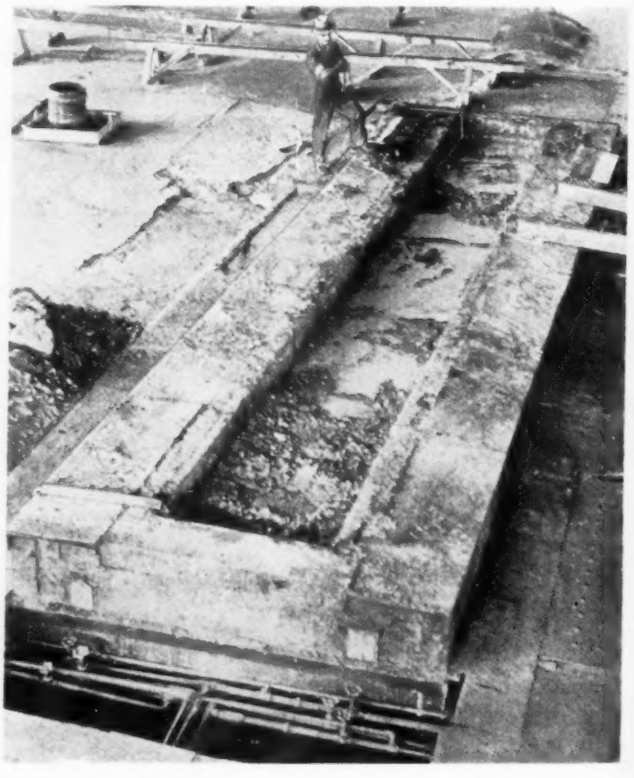


FIG. 2 — The galvanizing bath and kettle with floor plate removed to show gas pipes to burners. Thermocouples enter the bath at the near and far corners on the left side. The kettle was not operating when this view was taken

background. Where they cross the top of the tank, these thermocouples are protected with steel angles. They connect through rubber-covered duplex lead wire to a two-point potentiometer controller located about 80 feet from the tank in a separate room as shown in Fig. 4.

This two-point recording controller, manufactured by the Leeds & Northrup Co., Philadelphia, has a continuous chart, the scale width of which is 9⅞ inches and the temperature range 600 to 1000 degrees Fahr. Temperatures detected by the thermocouples are recorded alternately on the chart by the con-

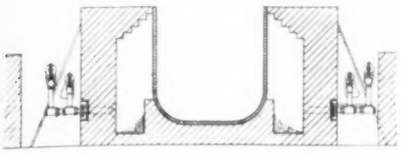


Fig. 3—Cross sectional view of 30-foot 80-ton galvanizing kettle

troller which at the same time operates contacts capable of being set to control at the same or different temperatures. These contacts move the control valves to regulate the fuel to the north and south ends of the tank respectively.

This controller is installed in a sheet steel protection cabinet as shown with separate enclosed valve mechanisms in each of the two steel cabinets at the right and left sides. The recording controller, which is equipped with automatic electric cold junction compensation, is motor driven, operating from the 110-volt 60-cycle lighting circuit. By means of this equipment, the temperature of the bath is maintained uniform within the limits of plus or minus 2 degrees Fahr. To indicate the uniformity of the bath temperature, a section of recording chart covering a period of about one hour is reproduced in Fig. 5.

Circuit Is Balanced

Accuracy and reliability are inherent in this type of potentiometer controller because it is essentially an electrical balance. It operates in principle to translate the temperatures at both end of the bath into electrical pressures, or electromotive forces, and then to set these pressures, as it were, in a balance to be weighed alternately and repeatedly at short intervals. The electromotive force from one thermocouple after the other is applied to one side of the circuit of the instrument, and a known electromotive force is applied to the other side.

As the circuit is balanced automatically on a microscopically sensitive balance, the value of the electromotive force from each thermocouple in turn is recorded on the chart in degrees of temperature. In the process, the motor drive turns the control contacts the amount necessary to control the motors of the three-position fuel control valves, which move each in turn to the setting necessary to maintain the temperatures within the 2-degree limit.

Although very sensitive, the instrument is extremely robust and records the temperatures of both ends of the kettle reliably. From the record in Fig. 5 it is possible to see how nearly identical are the temperatures at both ends of the bath, and in galvanizing it is most important that the temperature of the zinc be uniform throughout the kettle.

Experience in operating this kettle indicates that it is possible and practical to hold the zinc temperature constant to within the narrow limits of 2 degrees Fahr., a condition made possible by the large number of gas burners well distributed to provide uniform heat input. Drossing has been reduced to a minimum and by holding temperature at the correct value the chemical action of the molten zinc upon the steel kettle is brought down to small proportions. At 825 degrees Fahr. this activity is slight, at 900 degrees it is rapid. It has been found that best results for the company's product are obtained when the temperature is held below 850 degrees.

Arranging Programs for Buffalo Metal Congress

Sessions featuring a wide range of both practical and research papers are being scheduled by the American Society for Steel Treating for its annual convention to be held in conjunction with the Fourteenth Annual National Metal congress and exposition in Buffalo, Oct. 3-7. This year's sessions will deal with reports of metallurgical research; nitriding; drop forging; corrosion-resistant steels; sheet steel; high-speed steels; deep acid etching of steels; and heat treatment.

Technical programs also are being arranged by six co-operating societies and society divisions including the American Welding society; Iron and Steel and Institute of Metals divisions of the American Institute of Mining and Metallurgical Engineers; Iron and Steel division of American Society of Mechanical Engineers; Production Activity division of Society of Automotive Engineers; and the Wire association.

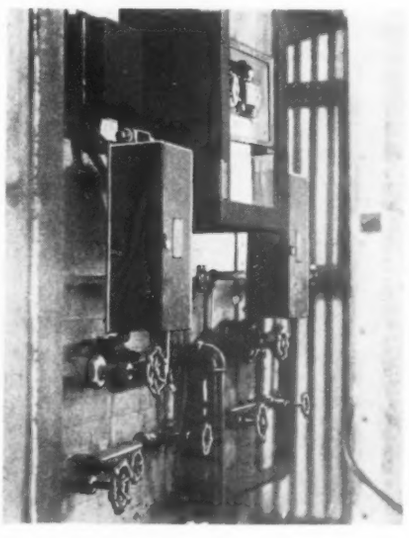


Fig. 4—The two-point potentiometer-type recording controller which maintains constant bath temperature. A distance of 80 feet between kettle and controller has no effect on accuracy

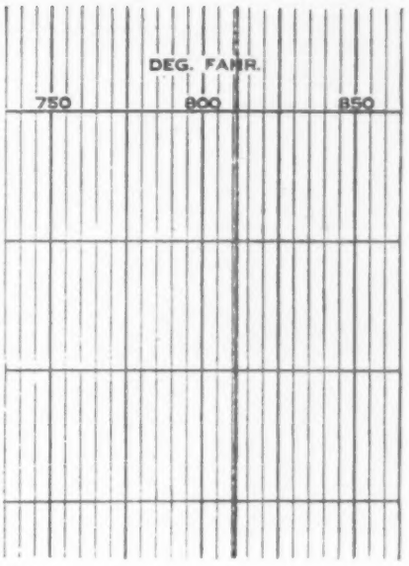


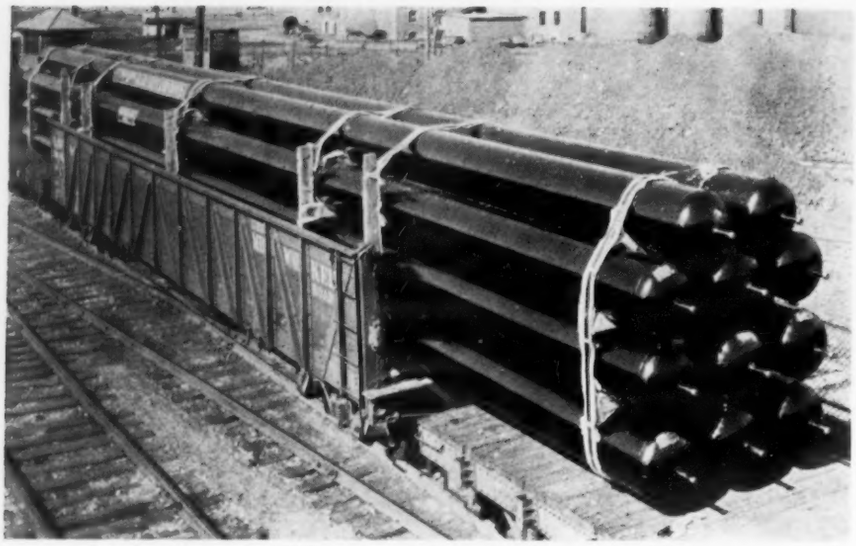
Fig. 5—A section of chart recording temperature at both ends of bath. Spaces between vertical lines represent 5 degrees and between horizontal lines 20 minutes

Electrochemists Choose Cleveland for Meeting

The Electrochemical society will hold its sixty-second fall meeting in Cleveland, Sept. 22-24, it has been announced. Among sessions planned are one on electric brass and steel under direction of the electrothermic division and one on electrodeposition.

Open-Hearth Committee To Meet in Youngstown

The spring conference of the open-hearth committee of the American Institute of Mining and Metallurgical Engineers will be held at the Ohio hotel, Youngstown, O., May 23-24, it has just been announced. L. F. Reinartz, works manager, American Rolling Mill Co., Middletown, O., is chairman of the committee.



The first shipment of 85 electrically-welded pipe tanks to be used for helium gas storage at the United States naval air station in Sunnyvale, Calif. Each tank is 80 feet long and 2 feet diameter and requires 6 tons of steel

Helium Gas Stored in Pipe Tanks of Welded Steel

ECONOMICAL storage of helium gas in "pipe tanks" of welded steel plate, 7/16-inch to ½-inch thick, has been developed by the A. O. Smith Corp., Milwaukee, in the adaptation of the company's standard electrically-welded pipe for that purpose. The corporation now is working on an order from the United States navy department for 85 of these pipe tanks for storing helium gas at the Sunnyvale naval air station, Mountain View, Calif.

Because of the high pressure involved and the navy department's newer methods of providing helium gas storage, this project embraces a number of interesting features. For the Sunnyvale order, 7/16-inch plate is to be used, while previous similar orders for the navy department were filled by the Smith corporation with the use of ½-inch welded plate pipe.

The cylindrical tanks are 80 feet long and 2 feet outside diameter, each built up of two 40-foot lengths of the company's standard 24-inch outside-diameter pipe. Formerly, flat forged steel heads were welded to the ends, but for this order, the company is using elliptical shaped heads, ¾-inch thick, instead of the forged heads. A manifold connects to the ends of the pipe tanks through which the gas is charged or discharged.

Three years ago when the first pipe tanks were built, ½-inch wall thickness was specified and with a storage pressure of 750 pounds per square inch, the stress was slightly over 18,000 pounds per square inch. This is believed to have been a record stress for welded construction in 1929. For the 7/16-inch pipe tanks, the storage pressure remains the same—750 pounds per square inch, and the corresponding stress increases to about 21,500 pounds.

Under the specifications, the stress cannot exceed 48 per cent of the yield point of the material and the yield point must not be over 70 per cent of the ultimate. The Smith corporation is using 0.35 to 0.45 carbon steel, and the finished pipe will have a yield point of not less than 45,000 pounds per square inch, a minimum ultimate strength of 67,500 pounds per square inch, and an elongation of about 25 per cent in 2 inches.

Tank Weighs 6 Tons

Each welded plate section is formed from a single plate, with not more than one longitudinal welded seam per section. Longitudinal welded seams in adjacent sections are staggered 180 degrees. Heads are designed to be stronger than the straight cylindrical shell. Each tank requires about 6 tons of steel making the total for the 85 tanks some 510 tons. The first of these tanks loaded for shipment, are to be seen in the accompanying illustration.

The tanks will be stacked horizontally above ground with a manifold across one end. They will be given a bituminous priming coat and a top coat of bituminous enamel not less than 1/16-inch thick. In order to qualify under the navy department's specifications, the company is required to make a destruction test on three sample tanks 20 feet long, made from pipe picked from three different heats. These tanks must develop the minimum yield point and ultimate strength required under the specifications.

The lengths of pipe in the tanks are joined together in the center with the company's standard centering rings. A 1½-inch extra-heavy pipe nipple is provided in one head for joining to the manifold. The only other openings are two small vents, one in each head near the head joint, drilled and tapped for 1-inch plugs, and provided with a copper gasket for tightness against the hydrostatic test pressure of the tank. Bosses are provided at each opening so that the tank will not be weakened by the presence of the opening. Each tank is provided with five bands, 4 x 4¼ inches, located at the longitudinal mid-point, and 18½ and 37¼ feet each side of the longitudinal mid-point.

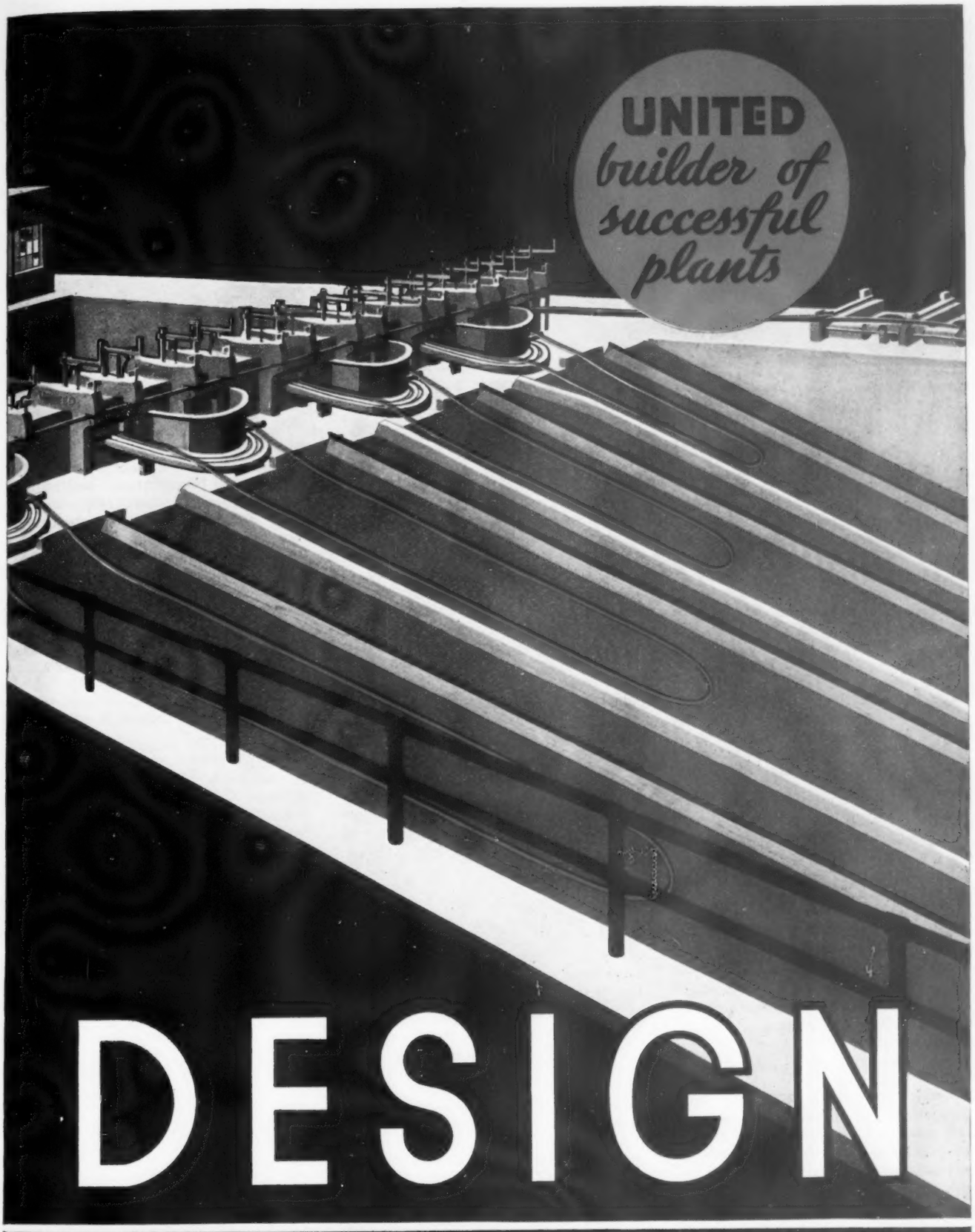
The navy department formerly stored helium gas under 2000 pounds pressure in large forged steel vessels about 4 or 5 feet in diameter. However, because of the economy gained in using batteries of pipe tanks, later installations have all been made of this new type.

Gray Iron Institute To Hold Cost Meeting

Gray Iron institute, Cleveland, announces a series of cost meetings to be held in several cities where local chapters are located. C. A. Klaus, eastern cost consultant of the organization, will present the comparative cost reports for the first quarter of 1932 and discuss the program of activity for the next quarter before the Massachusetts-Rhode Island chapter at the Worcester chamber of commerce, Worcester, Mass., at noon, May 16. The Connecticut meeting probably will be held two days later in Meriden, Conn.

Albert E. Grover, cost director of the institute, is arranging personally to conduct three conferences as follows: Quad Cities chapter in Moline, Ill., all day May 24; Wisconsin chapter in Milwaukee, May 25; and Chicago District chapter in the Midland club, Chicago, May, 26. Mr. Grover's program covers the same subjects as given for Mr. Klaus.

Arthur J. Tuscany, manager of the institute, will address a meeting of the Pittsburgh Foundrymen's association in the Fort Pitt hotel, Pittsburgh, May 16 on the subject "How Can the Foundrymen Cash In on Hard Times."



THE WORLD'S LARGEST MAKER OF ROLLS AND ROLLING MILL EQUIPMENT

UNITED
ENGINEERING *and* FOUNDRY COMPANY
PITTSBURGH — PENNSYLVANIA

• LOOPING TYPE ROD MILL—built for the largest producer of copper rods and wires in Canada. Its quality of product has set a new standard in rod specifications.

Chain link fabric used for advertising displays. In this sign are 330 pounds of fabric; 470 pounds of posts, railings and fittings, and 100 pounds of "copy"

Large Uses of Steel In Small Ways

217th Article ◆ Chain-Link Billboards

STEEL is lending strength and attractiveness to a new type of outdoor advertising display that eliminates a number of the objectionable features attached to the many billboards lining the highways and building roofs of the country.

The signs consist simply of two upright steel posts between which open-mesh fence fabric of steel or aluminum is stretched, supported at the top by steel cable and at the bottom by steel pipe bracing. To this fabric advertising material, consisting of letters or designs cut from steel sheets, is attached by special metal clips. The letters and designs are suitably colored and form an unique silhouette against the background.

Minimum Obstruction

Unsightly back bracing has been eliminated in this type of sign, and the scenery is obstructed to only a small extent compared with the full size displays now in use. Wind resistance is reduced, and because of the lighter weight of material used and the fact that light is not shut off from adjoining properties these signs are especially suitable for use on the roofs of buildings and in densely populated districts.

Parts employed in construction of these displays can be salvaged and used for erection in different location. Copy is removed easily from the mesh by unloosening the clips and may be rotated among other displays. Cost of the metal signs compares favorably with that of the wood type, according to the manufacturer.

The average 40-foot sign weighs about 900 pounds complete, made up of the following steel parts: Chain link fabric, 330 pounds; posts, 336 pounds; fittings, 50 pounds; railing, 84 pounds; "copy," 70 to 100 pounds. The weight of the copy varies considerably since the majority of the signs are of the cut-out type. Letters and other copy for the signs are cut on a nibbling machine, especially adapted for cutting practically any design.

These signs have been developed by the Page Steel & Wire Co., Bridgeport, Conn., and while it is believed they will afford an important field for the consumption of steel no figures are available as yet on annual production.

Foundry To Make Special Alloy Steel Castings

The Cooper Alloy Foundry Co., 150 Broadway, Elizabeth, N. J., recently has broadened its scope of operations to include the production of low-chrome and chrome-nickel steels for high tensile and high pressure castings. These alloys include the standard specifications, such as 1.00 per cent chromium, 2.00 per cent nickel; and 1.00 per cent chromium, 0.30 per cent molybdenum; as well as other special analyses to meet specific conditions.

Completes Report On Slag Viscosity

IN CONNECTION with its study of physical chemistry of steelmaking, started in 1926, the Metallurgical Advisory Board, representing the mining and metallurgical industires of Western Pennsylvania, Carnegie Institute of Technology and United States bureau of mines, has published bulletin No. 56 dealing with the viscosity of various types of slags.

The bulletin summarizes a study of viscosity-temperature-composition relationships of slags composed of CaO, SiO_2 and CaF_2, the data and measurements having been obtained during the fifth year of the general program. Authors of the bulletin are C. H. Herty Jr., physical chemist, bureau of mines; F. A. Hartgen, assistant metallurgist, bureau of mines; and G. T. Jones, research fellow, Carnegie Institute of Technology.

Seek To Improve Practice

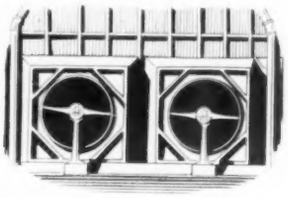
The original program was undertaken in 1926 with the belief that an intensive study of certain phenomena would lead to better operation of furnaces, to a better understanding of steel in ingot form, to a greater knowledge of the physical properties of steels, with particular regard to the effect of the constituents which are more or less indeterminate, and finally to the more economical utilization of raw materials and to sounder and more dependable steel.

It was agreed that the program should extend over a period of at least five years and should cover the following outline: 1. A complete survey of the literature on steel and steelmaking processes; 2. iron oxide in steel; 3. formation and identification of nonmetallic inclusions; 4. effect of nonmetallic inclusions on the physical properties of steel; 5. elimination of nonmetallic inclusions from steel; 6. equilibrium between slag and metal; 7. gases in steel; and 8. viscosity of slags. The bulletin just issued is concerned with the last item in this outline.

Copies of the report are to be obtained for 50 cents each from John D. Beatty, secretary, Mining and Metallurgical Advisory Boards, Carnegie Institute of Technology, Pittsburgh.

MAKING THE MOST OF STEEL

IN A manufacturing plant where chrome-nickel steel is formed into disks by spinning, cracking and breakage have been eliminated by adding to the annealing time, even beyond the proper annealing period as shown by physical and chemical tests. This manufacturer experienced much difficulty in breakage of the disks in the spinning operations, although the photomicrograph indicated thorough annealing. An X-ray diffraction pattern demonstrated that while physically and chemically the annealing was perfect, a molecular change had taken place in the spinning. It was concluded that the molecular cross strains and readjustments were responsible for the cracking and breakage. Further annealing then eliminated this difficulty.



A NEW ventilating fan designed specially for duct work has only two airplane type blades and these are capable of pitch adjustment to meet the exhausting condition of the application. The motor is mounted outside the duct away from detrimental dirt and spray fumes and drives direct to the fan blades through positive gears without belts or chain.

$ $ $

Gunpowder, long confined to projecting destructive missiles now is finding a new role in which it is constructive. Employed in an industrial gun perfected by a noted wartime inventor, the explosive properties of the powder have proved successful in driving rivets, splicing electric cable and repairing the hulls of ships under water. A cable splicer weighing 15 pounds and operated with a small special blank cartridge will drive a ½-inch stud through solid steel 1⅜ inches thick without utilizing previously drilled holes. United States navy tests have proved that the frictional hold of a ½-inch stud in a ½-inch steel plate requires 14,000 to 16,000 pounds of hydraulic pressure to remove the stud from the plate.

$ $ $

Machine reamers formerly used by a Western public utility were of four types and they were purchased over approximately the same range of sizes, totaling 216 separate items. It was found that these four reamers all were used for the same kind of work and for that reason one series of sizes would suffice. Some of the types were found to be superior over certain size ranges. By standardization 184 items, or 85 per cent, were eliminated, leaving only 32.

$ $ $

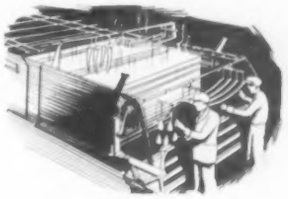
A new and novel use for electrically welded steel tubing is electric heating elements, the tubing containing the elements proper and the insulator.

$ $ $

Aluminum foil, approximately 0.0003 inch thick, and weighing only three ounces to a cubic foot, is being introduced as an insulating material. The insulation is built up by applying successive layers of foil around the article at intervals of one-third inch. The foil is crumpled so as to produce ridges and valleys throughout the sheet. Applications are pipes, tanks and boilers. It is said to afford insulation up to 1150 degrees Fahr.

$ $ $

A device for measuring the roughness of a machined surface and to determine the nature of the irregularities has been developed by three research workers of the University of Michigan. The surface to be measured is traversed with a fine tracer point connected with a small mirror so that the movements of the tracer produce angular displacements of the mirror. Displacements of the mirror are then recorded by a spot of light on moving photographic paper. A bearing manufacturer is using the device to study the type of scoring obtained on various bearing surfaces in tests of different lubricants.

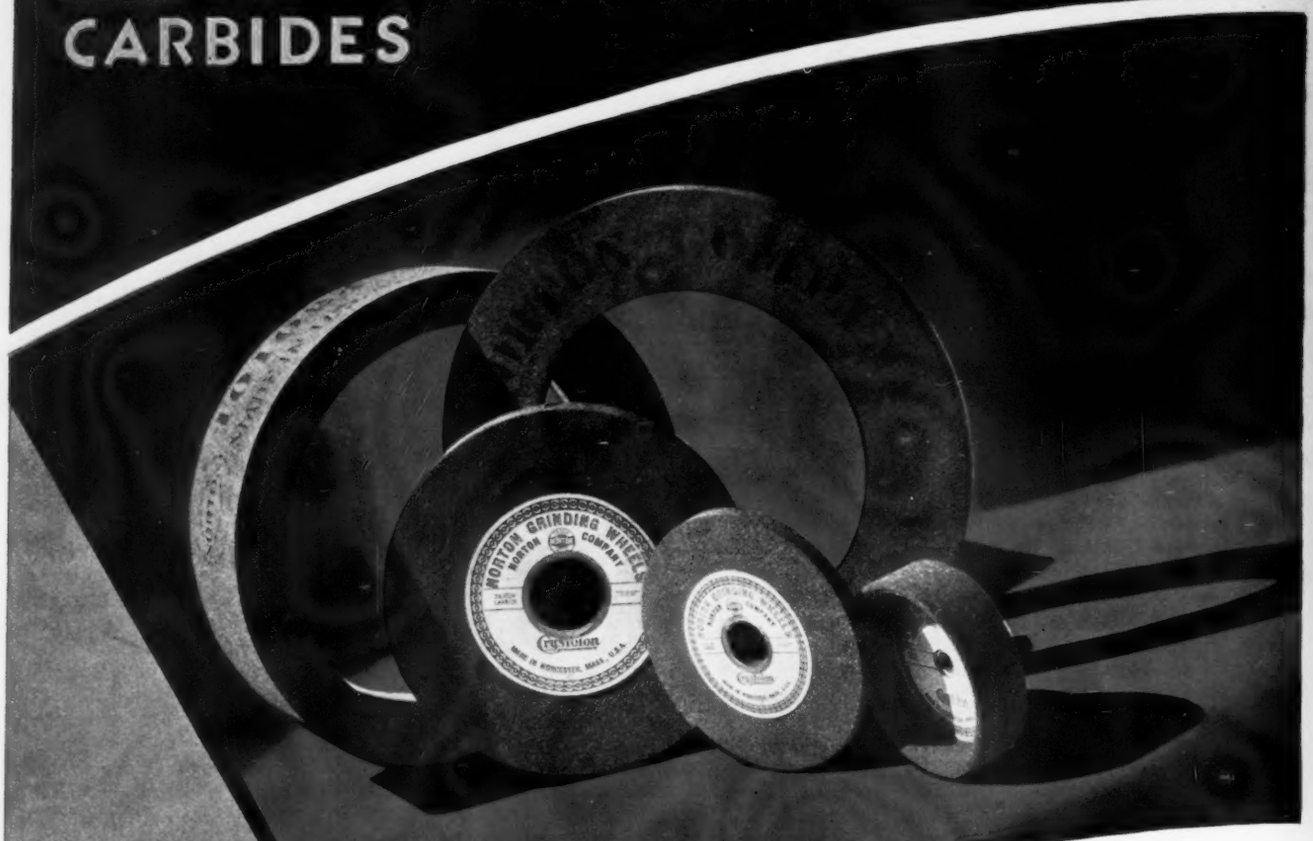


SATISFACTORY, thoroughly adherent electrodeposits of nickel on aluminum articles may be obtained by carefully cleaning the surface in an alkaline peroxide bath followed by a strong sulphuric-nitric acid bath, flashing with brass and finishing with a standard nickel bath. The undercoat of brass greatly increases the uniform adhesion of the electroplate to the aluminum surface.* After nickel plating, the articles are given a final wash in cold and hot water followed preferably by drying in maplewood sawdust. In some cases, the nickel plate is polished with a good buff to increase the luster.

$ $ $

A foundry in Detroit which furnishes dies to an automotive manufacturer has found that a heat-treated alloy cast-iron die employed in service involving sharp corners has given 8300 stampings and is still serviceable, as compared with a heat-treated semisteel die which gave a maximum of 200 stampings.

FOR CEMENTED CUTTING CARBIDES



WHERE cutting edges must be razor-sharp, where true plane surfaces are wanted quickly, where a combination of steel and carbide offers a difficult problem . . . . for jobs such as these Norton wheels for grinding cemented tungsten and tantalum carbides are becoming increasingly popular.

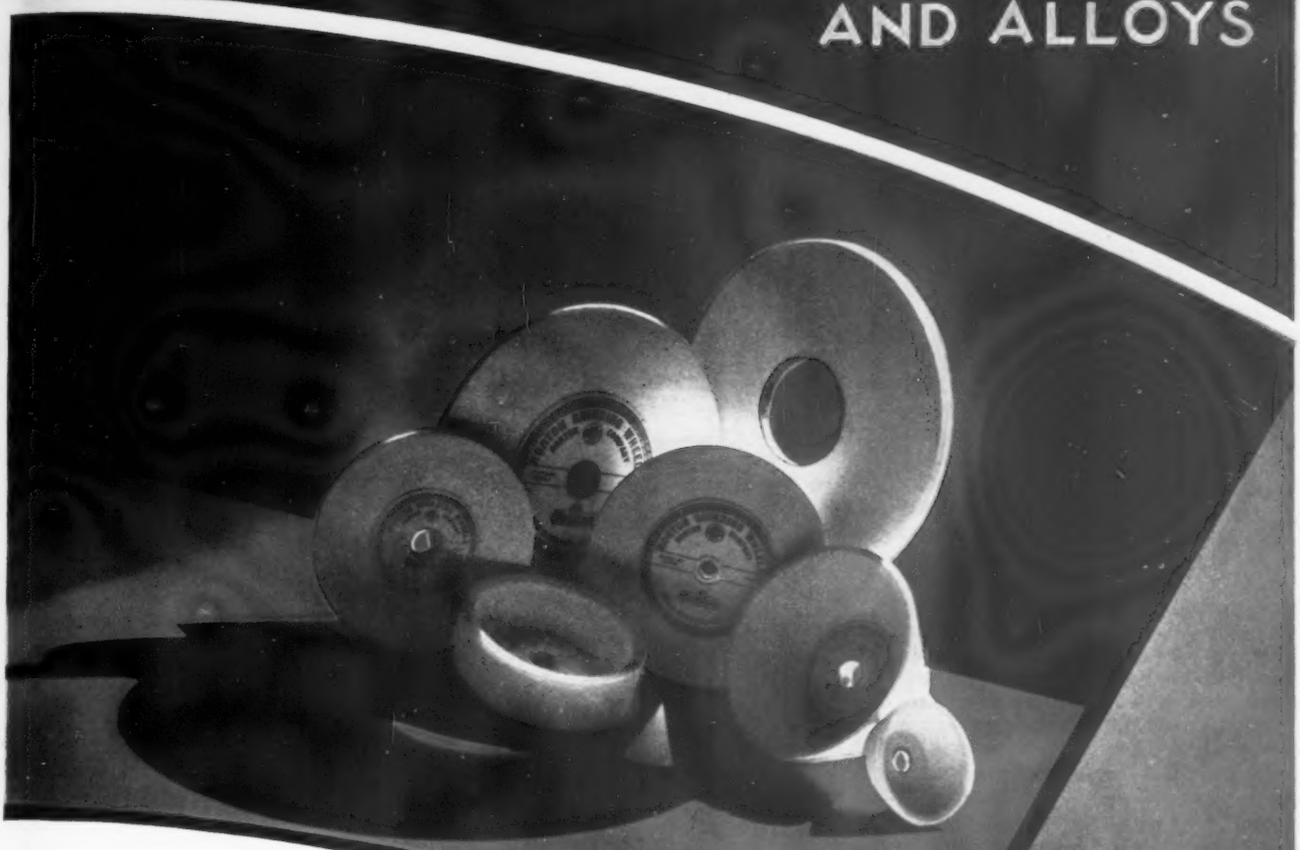
Their success is due to two definite features: 1. Crystolon abrasive—sharp, strong, hard silicon carbide. 2. Controlled Structure—positive regulation of grain spacing for close fitting of the wheel to the job and for close duplication.

Here is what Norton wheels are actually doing—two typical examples: Surface grinding steel and cemented carbide with a .002" cut, leaving only .0002" taper. Fixture grinding 100 tools in the time 30 tools were ground before.

NORTON COMPANY
WORCESTER, MASS.
New York Chicago Detroit Philadelphia
Pittsburg Hartford Cleveland Hamilton, Ont.
London Paris Wesseling, Germany

W-403

FOR HIGH SPEED STEELS AND ALLOYS



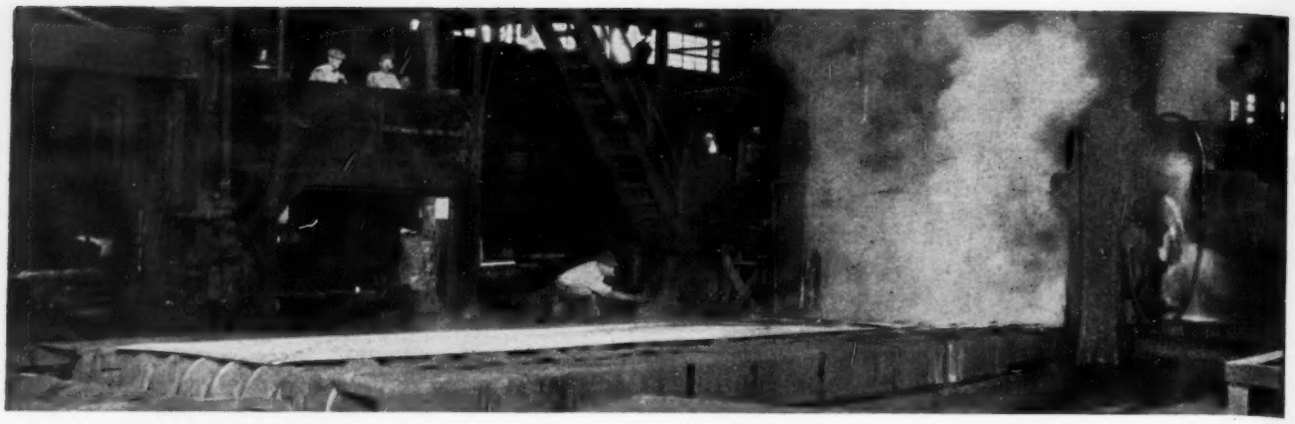
NORTON "B" bond wheels have introduced new efficiency into the grinding of modern tool and die steels. They have actually made possible faster stock removal without increasing wheel wear and yet have reduced to a minimum the dangers of burning the work.

As "B" bond wheels grind, more cutting particles are presented to the work at a time than with other vitrified wheels. The stress of grinding is spread over many tiny points of contact rather than over comparatively fewer and larger areas. Clearance is more evenly distributed. Grinding heat is reduced. Wheel wear is slower; dressings are fewer.

"B" bond wheels are exclusively Norton — patented. And they are made to controlled structure for close fitting to the job and for close duplication.

NORTON
GRINDING WHEELS

W-404

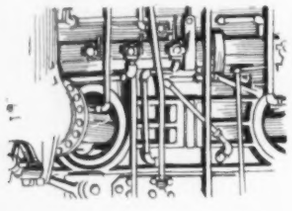


PROGRESS IN STEELMAKING

ANNEALING, steel sheets in electrically-heated furnaces has been made practicable by the recent development of a new unit lined with lightweight refractory brick to promote small heat storage in the furnace walls. The new furnace is served by a circulating system and an external cooler, by means of which the heat may be extracted from and charged into the compartment at a comparatively high rate. The use of hydrogen as an atmosphere increases the effectiveness of the annealing system because of its high specific temperature. Steel sheets can be cooled in this type furnace in about 50 per cent of the time required to bring them to handling temperature when set in the open beneath a hood. Moreover, a better surface condition is obtained.

♦ ♦ ♦

Granular tungsten carbide has been introduced as a hard facing material for high-speed tools, shovel teeth, grinding shafts, etc. It is applied with a carbon arc, 1 ounce covering a surface of 3 to 4 square inches. The material has a tensile strength of steel, a scratch point of nine and maintains its abrasive-resisting qualities at red heat.



TUYERES made of laminated copper fabricated from the solid block, not cast; and installed in the bosh of certain European stacks are showing long life. At one stack rated at 775 tons, a tuyere of this type was in service during the production of 328,000 tons of iron.

♦ ♦ ♦

Using steel bands for bracing shipments of steel sheets from Pittsburgh to the Detroit district is saving a producer $26.10 a day in freight on dunnage, compared with the former method of using wood blocking as a bracing medium.

BATH conditions in an open-hearth furnace favoring a low-phosphorus steel will cause a lower nitrogen content, according to tests conducted by a steelmaker in the Chicago district. Ferroalloys used as bath and ladle additions contain only small amounts of nitrogen and need not be considered a source of nitrogen in steel.

♦ ♦ ♦

Decrease in the cost of maintaining the electrical control devices free from graphite at a bessemer department in the Chicago district has been effected by inclosing the control apparatus and panels in dust-tight cases. Felt gaskets ¼-inch thick are applied to the doors and backs of each case.

♦ ♦ ♦

Checking the hardness of incoming and outgoing steel is accomplished rapidly by the use of a newly devised portable hardness tester which employs the principle of the falling pendulum. The hardness value is determined by holding the instrument against the piece to be tested and pressing a button at the rear of the case, which releases the pendulum. In rebounding a pointer remains at the highest point of the scale to which the pendulum rises. Material 0.002-inch and thinner has been tested successfully.

♦ ♦ ♦

Deposition by electric-arc welding of a new hard-surfacing material containing from 13½ to 14 per cent manganese is said to produce toughness and wear resistance equal to manganese steel.

♦ ♦ ♦

Representative acid solutions for pickling high-chrome steels are composed of 55 parts of 20-degree Baume hydrochloric acid, 5 parts of 42-degree Baume nitric acid and 40 parts water; or, 5 parts of 20-degree Baume hydrochloric acid, 5 parts of 42-degree Baume nitric acid, 16 parts of 66-degree Baume sulphuric acid and 74 parts water. The nitric acid passivates the metal against the action of sulphuric and hydrochloric acids. Temperatures of the solution usually range from 150 to 160 degrees Fahr. After rinsing the steel should be passivated in 20 per cent actual nitric acid for 30 minutes at 150 degrees Fahr.; otherwise, the metal will not be stainless.

USE of heavy viscosity oil stock as the base of roll neck grease has been found an aid in retaining the homogeneity of the product and in maintaining proper lubricating film on the necks.

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

Wire Rope

Lubrication of shaft hoist ropes, in Wire Engineering, April-May 1932, *p. 2, 6 pp., 4 illusts.*

Safety of any wire rope, particularly when used for shaft hoist duty, is directly dependent upon consistently good lubrication, with regard both to type and quality of lubricant and the method and frequency of application. Wire rope, from a lubrication standpoint, should be considered as a machine element having wearing surfaces that require the presence of an oil film to prevent metal-to-metal contact and wear.

Lubrication, to be effective, should be carried out in a two-step method: (1) The application of a relatively light penetrating oil which will adhere to the individual wires and penetrate to the core or hemp center; and (2) the application of a shield or protector to resist the washing action of rain or mine water. The most effective results from any lubricant or protector can be obtained only when they are applied to a rope that has been properly cleaned. Selection of the most practical and economical method of cleaning depends largely upon local conditions to which the hoist rope is submitted. A number of cleaning methods are discussed, as well as equipment for cleaning rope and applying lubricant.

—STEEL, 5-16-32

Nitriding

Details of operation of bell-type nitriding furnace, by Willard Roth, in Metal Progress, May 1932, *p. 40, 4 pp., 5 illusts.*

Efforts toward reducing the unit cost of nitriding have led to the development of a few large-scale nitriding units. This article describes an installation for what is yet considered large scale production, with a capacity for 1000 to 2000 pounds per heat. Demands for continuous production in this instance led to the adoption of the bell-type furnace. The base of the furnace not only supports the charge but also forms a part of the nitriding container, being a gas tight shell, with its outer edges flanged down into an oil seal in a trough around its periphery. With such a construction the nitriding container becomes merely a light metal hood, covering the charge and base; its lower edge also projects into the oil seal. The furnace bell, corresponding to the pit furnace itself, may then be lowered over the hood. An operating unit consists of two such bases and hoods, and one furnace bell, continuously heated, which alternates between the bases.

Unit cost for operating this furnace, including ammonia, power, labor and fixed charges, has been determined at 5.21 cents per pound of steel hardened. It is estimated that when production schedules have increased to the point where the furnace is in full continuous operation five days and nights per week, the total unit cost of nitriding will fall below 4 cents per pound.

—STEEL, 5-16-32

Wear of Metals

Relative wear of metals due to abrasion, by Charles R. Weiss, a paper presented at the Three-M (management, materials handling and maintenance) congress of the American Society of Mechanical Engineers, in Detroit, May 4-5, and reprinted by the Link-Belt Co., 2 pp., 2 illusts., 1 table.

This study was undertaken primarily in the hope of ascertaining, particularly for power transmission chain purposes, the type of material best suited and the type of treatment which should be applied in order to obtain maximum wear value at a minimum cost expenditure. Experiment proved that a rotating machined cast iron doughnut-shaped disk, supplied with a fixed amount of a uniform abrasive in the presence of fixed amounts of water, furnished a uniform lap. Water was selected on account of the thinness of its film and its ability to keep the temperature uniform. The disk was rotated at a speed which would not build up centrifugal action to a point at which the abrasive would leave the lapping disk.

The abrasive selected was 80 mesh Crystolon. It was decided that the loss in weight under a fixed pressure per unit of area, should be the measure of the resistance of the material to the abrasive attack. The comparator material used was Key steel, 0.08 to 0.12 per cent carbon.

A description of the device developed for the abrasion tests is presented. Approximately 1400 determinations were made on different materials, such as heat treating steels, case hardening steels, corrosion-resisting steels, miscellaneous steels, cast irons and bronzes. Comparative wear values are tabulated for over 100 of these materials.

—STEEL, 5-16-32

Manganese Steel

Production and application of manganese steel in Australia, by D. Clark and J. Coutts, Australian exchange paper presented at the annual meeting of the American Foundrymen's association in Detroit, May 2-5, 15 pp., 6 illusts., 3 tables.

In Australia, manganese steel castings are used for a variety of purposes, especially for wear resistance. With rolled rails or cast points and crossings, the life of manganese steel as compared with carbon steel of the grade generally used for these purposes has been proved to be not less than 4 to 1, and may run as high as 9 to 1. The various processes for making manganese steel are described and the advantages and disadvantages of each are discussed. The properties obtained by varying analysis are compared. Heat treatments are listed and work hardening effects discussed. Attention to design factors and correct risering are stressed.

—STEEL, 5-16-32

Specifications

How to write specifications for quality metals, by F. M. Randlett, in Metal Progress, May 1932, *p. 44, 2 pp., no illusts.*

A complete workable specification for a product represents a high order of work. It should combine within itself the harmonized antagonistic interests of both the producer and the consumer; it should have the fewest possible requirements consistent with securing a satisfactory product; it should be so comprehensive as to leave no chance for ambiguity or doubt; and above all, it should provide for inspection and tests that will protect the consumer in his purchase.

—STEEL, 5-16-32

New Equipment

PRODUCTION FABRICATION TREATMENT FINISHING

Large Roll Lathe Meets New Requirements

United Engineering & Foundry Co., Pittsburgh, has completed in its shops a large roll lathe designed to meet the requirements of recent rolling mill installations. Although nominally a 70-inch unit, it will take a roll 82 inches in diameter 26 feet long over all, with its standard equipment, and with slight modifications of the tool equipment it can accommodate a grooved or straight-face roll 88 inches in diameter.

The principal demand for rolls of such large sizes is in continuous wide hot strip mills and 4-high plate mills which have changed the entire process of rolling flat materials. The new unit, shown in an accompanying illustration, is 49 feet long with enclosed headstock, two speed ranges, automatic lubrication system, massive cast steel bedplate and complete equipment for necking rests, piano rests, tailstock, housing, topping rig, etc.

In designing this lathe, allowance has been made both in speeds and in strength for tungsten carbide and similar cutting tools which permit severe cuts and increased speeds on heavy work. It is claimed that the new roll lathe is the largest in capacity, power and weight, ever built, but is designed to occupy no more floor space than necessary and is dimensioned for the same ease of control as a small size roll lathe.

Electric drill introduced by Independent Pneumatic Tool Co.

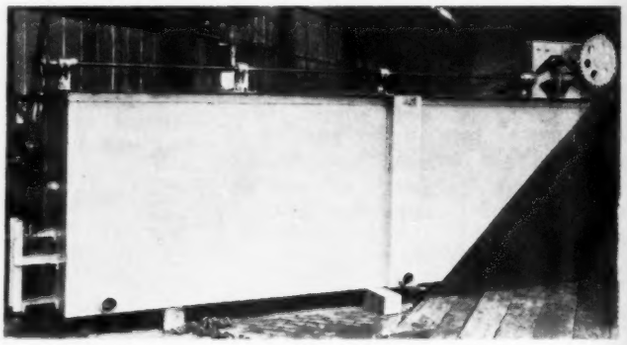
Electric Drills Simple In Construction

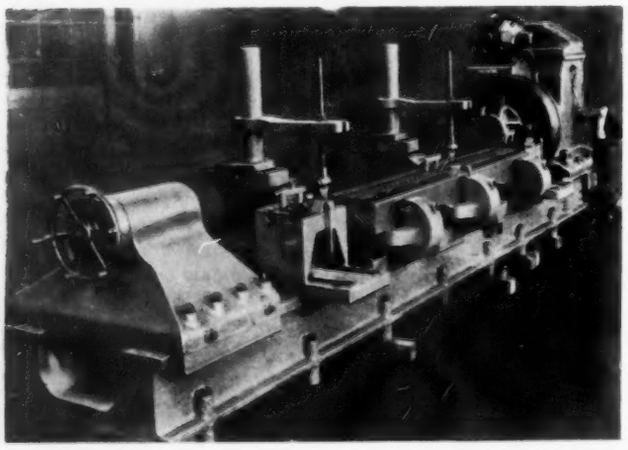
Independent Pneumatic Tool Co., 600 West Jackson boulevard, Chicago, is manufacturing two new electric drills—a ¼-inch size with grip switch, shown herewith; and a ½-inch size with side switch. The armature shaft in either size is made from alloy steel with pinions milled directly on the shaft. Core construction of the armature is of the open straight-slot type which permits the use of separate form-wound coils to be laid into the slots without first being flattened. This design eliminates the operation of flattening the coils.

The commutator is made in one unit, independent of the shaft, and is balanced and tested at 1100 volts before being assembled. A brass sleeve is employed which expands and contracts in equal proportion with the copper bars, preventing an uneven surface and excessive sparking. The switch is of the double-pole type and breaks both sides of the line at the same time, thereby disconnecting the current from the line to the motor. It is simple in construction, convenient for connecting the wires and fully protected from dust and dirt.

Field case and handle are made of aluminum in one piece, with heavy rib work on the inside. The field case, gear case and centerplate have hardened and ground steel bushings, into which the outer race of the bearing fits. The ¼-inch size has a speed of 2500 revolutions per minute and weight of 8 pounds, while the ½-inch size has a speed of 500 revolutions per minute and weight of 14½ pounds.

Quenching tank for handling heat treated parts was developed by N. Ransohoff Inc. to expedite production in a large automobile plant

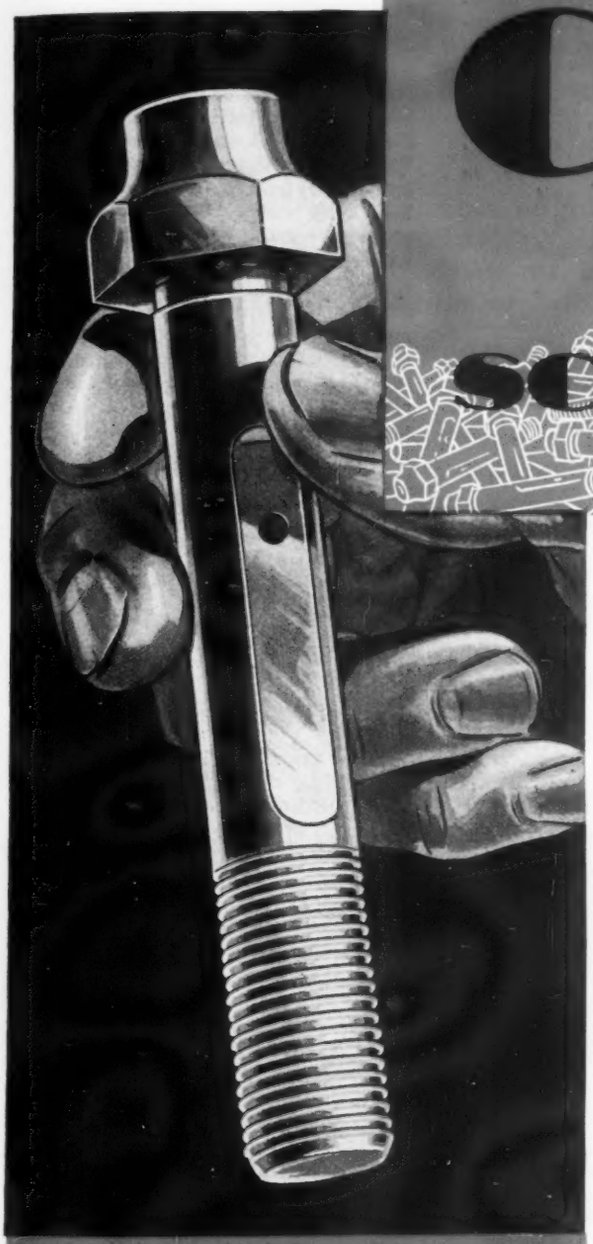




UNITED Engineering & Foundry Co. has designed what is said to be the largest roll lathe ever built. With its standard equipment, a roll 82 inches in diameter, 26 feet long can be handled

Quenching Tanks Solve Plant Problem

N. Ransohoff Inc., Cincinnati, recently built and installed two quenching tanks in one of the large motor car plants in the Middle West. An accompanying illustration shows one of the tanks before it was installed in a pit in the floor. Develop-



CENTRAL ALLOY DIVISION

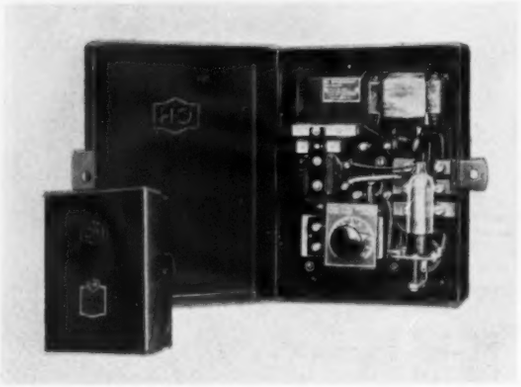
REPUBLIC STEEL
CORPORATION

Massillon, Ohio

By a 23% Reduction In Shackle Pin Rejections . . . . . .

■ In a certain automotive plant, three out of every ten spring shackle pins were being rejected because of soft spots. 30% of the steel stock was going to the scrap pile! Grinding costs were far too high. • Republic Metallurgists studied the problem . . . and solved it . . . with a special analysis steel of exceptional carburizing qualities. Rejections dropped from 30% to 7%. • Whipping the problem of impact brittleness for the manufacturer of a free-wheeling unit . . . developing a special analysis steel for a file maker who had been importing his steel stock . . . assisting a shovel manufacturer to meet a particularly tough specification . . . Just a few leaves from the notebook of those scientists in overalls . . . Republic Metallurgists. Why not avail yourself of such helpful metallurgical service?

AGATHON ALLOY STEELS



TIMING device developed by Cutler-Hammer Inc. for spot, projection, and other forms of resistance welders. An accuracy of better than a fraction of a second is made possible by use of an electronic tube in this unit

ment of the units resulted when plant engineers found that production was slowed up on certain parts immediately after heat treating, due to inadequate means for quenching the work. The company engineers devised a new method for handling this process and the Ransohoff company designed the equipment as shown.

Heat treated work slides down a grating from the furnaces into the tank onto an open mesh conveyor. It travels slowly through the tank and is discharged. A propeller wheel which keeps the water in circulation is operated by the small round belt seen at the left. The tank is equipped with baffle plates so that the cooling compound is kept in constant circulation the entire length of the tank. This brings the coolest part of the water into contact with the work as it falls into the tank and results in rapid and thorough quenching.

◆

Develops Timing Device for Welding Service

Cutler-Hammer Inc., Twelfth and St. Paul avenue, Milwaukee, has announced a new timing device for spot, projection and other forms of resistance welders, to provide accurate timing control of the welding operation. Use of an electronic tube makes possible an accuracy of better than a fraction of a second and the device has an adjustable range up to 16 seconds.

This new tube timing welder control known as bulletin 13101, is said to eliminate all guesswork on the operator's part, enabling unskilled operators to produce successful welds and to practically eliminate rejects and throw-outs. The timing is adjusted by a knob inside the enclosing case. The control requires a small mounting space and operates on 110 to 550 volts alternating current 25 to 60 cycles. Vibration, severe or intermittent service will not affect the accuracy of this control, the manufacturer asserts.

◆

Self-Contained Oil Seal Has Steel Shell

Aetna Ball Bearing Mfg. Co., Chicago, has developed an oil seal which is a self-contained and complete unit

Cutaway view of Aetna oil seal

that can be slipped in or out of position easily with nothing to work loose or become lost. The seal, shown in the accompanying illustration, has an outer shell of steel accurately formed and ground on an outside diameter to a precision commensurate with that of antifriction bearings. This shell houses the seal cushion, pressure plate and seal retainer.

The thermo-pneumatic seal cushion consists of specially treated cork in which the interstices or air cells are captivated and hermetically sealed. This seal cushion is nonhygroscopic and impervious, is of great resiliency, has low friction coefficient and is abrasive resistant. The deflector pressure plate of dense specially treated fiber deflects oil from the seal proper, serving to maintain a constant and steady pressure upon the pneumatic cushion and a uniform pressure over the entire periphery of the seal while relieving it of extraneous internal pressure. In this way the pneumatic seal is maintained concentric with the shaft and is relieved of longitudinal pressure. The seal requires no pretreatment or special precautions such as soaking in oil, etc. It can be taken from stock and put to immediate use.

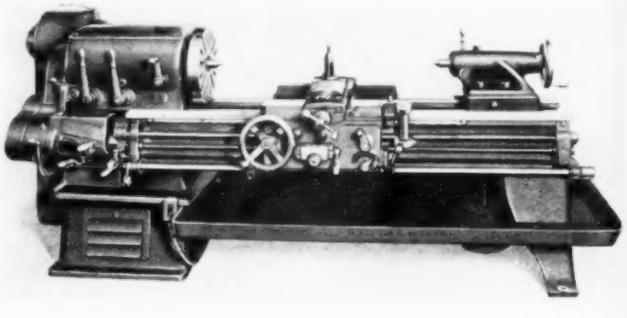
◆

Adds Series of 16-Speed Lathes to Line

Reed-Prentice Corp., Worcester, Mass., has added to its line of 8-speed sliding gear head lathes a series of 16-speed lathes in 14, 16, 16-inch heavy and 20-inch sizes. The units, one of which is shown in an accompanying illustration, incorporate such features as a 16-speed headstock, a new quick change gear mechanism providing all thread and feed changes without using the pickoff gears, and end gears mounted on antifriction bearings.

The features listed in the foregoing also now are standard equipment on 8-speed 14, 16, 16-inch heavy and 20-inch sliding gear head lathes. Use of the 4-bearing spindle mounting with precision antifriction bearings as well as other popular features of the 8-speed lathes, have been retained in the new 16-speed series.

SIXTEEN-speed lathe added by Reed - Prentice Corp. to its line of 8-speed sliding gear head units. A 4-bearing spindle mounting is used



The WORLD'S AUTHORITY on Cold Finished Steels »

THE experience of our engineers and metallurgists dates from the very inception of the industry. Our laboratories constantly seek improved steel structures and analyses to benefit users. Every plant improvement that promises better production or lower costs is immediately put into mill operation.

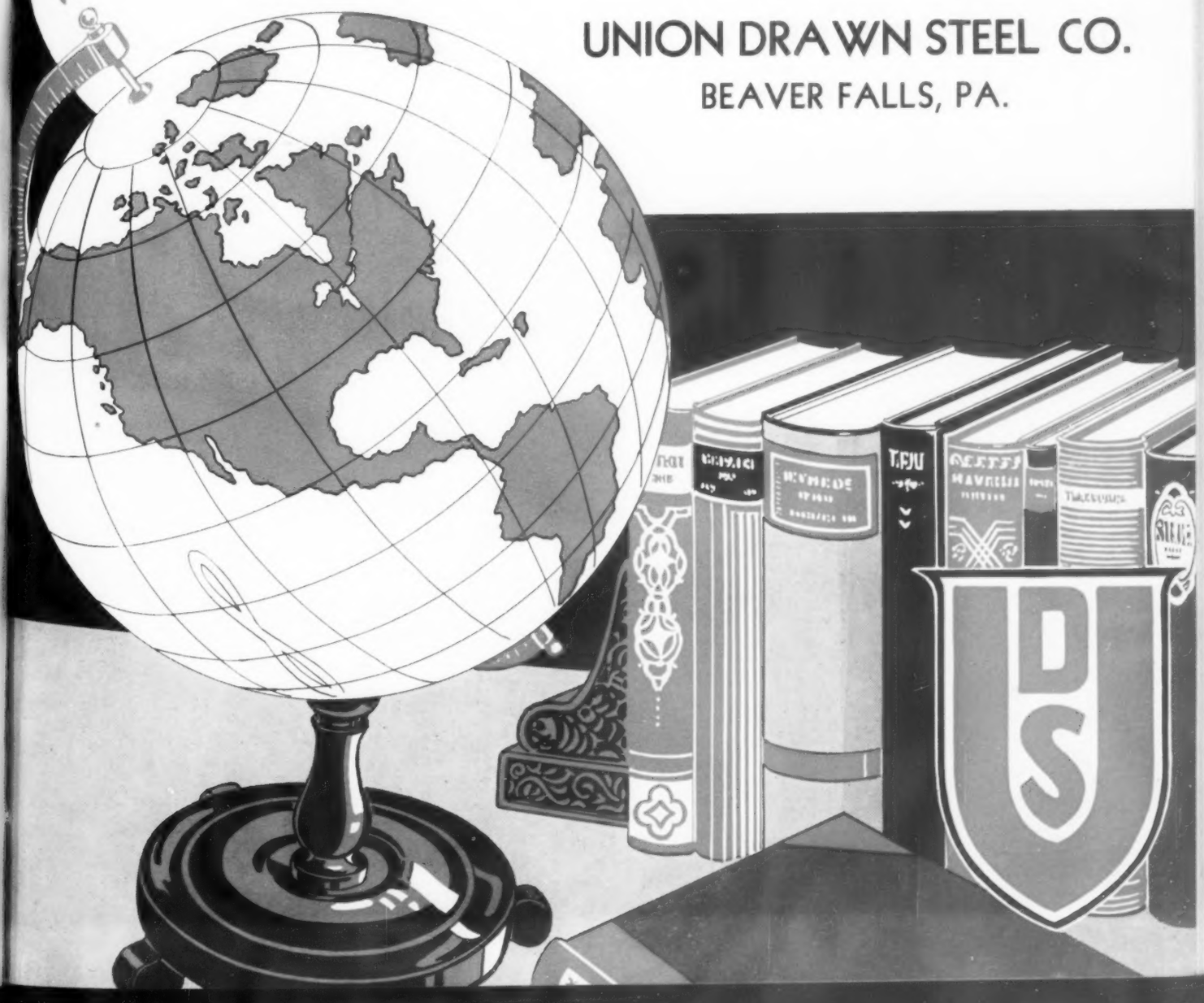
The research work of this organization has aided hundreds of plants toward more profitable steel applications and manufacturing processes.

Union Drawn manufactures every variety of cold finished steels. Its facilities are ample for the largest tonnage production.

Buyers naturally look to such an institution as the final authority on any problem in its field.

UNION DRAWN STEEL CO.

BEAVER FALLS, PA.



USE THE RIGHT STEE

Union Drawn Offers a Metallurgical Service that Goes to the Heart of Your Problem » » » » » » » »

A CHAIN manufacturer increases the production of his automatic screw machines 25% after adopting a change in the grade of steel employed. The new steel also reduces heat treating expense and improves the quality of finished parts.

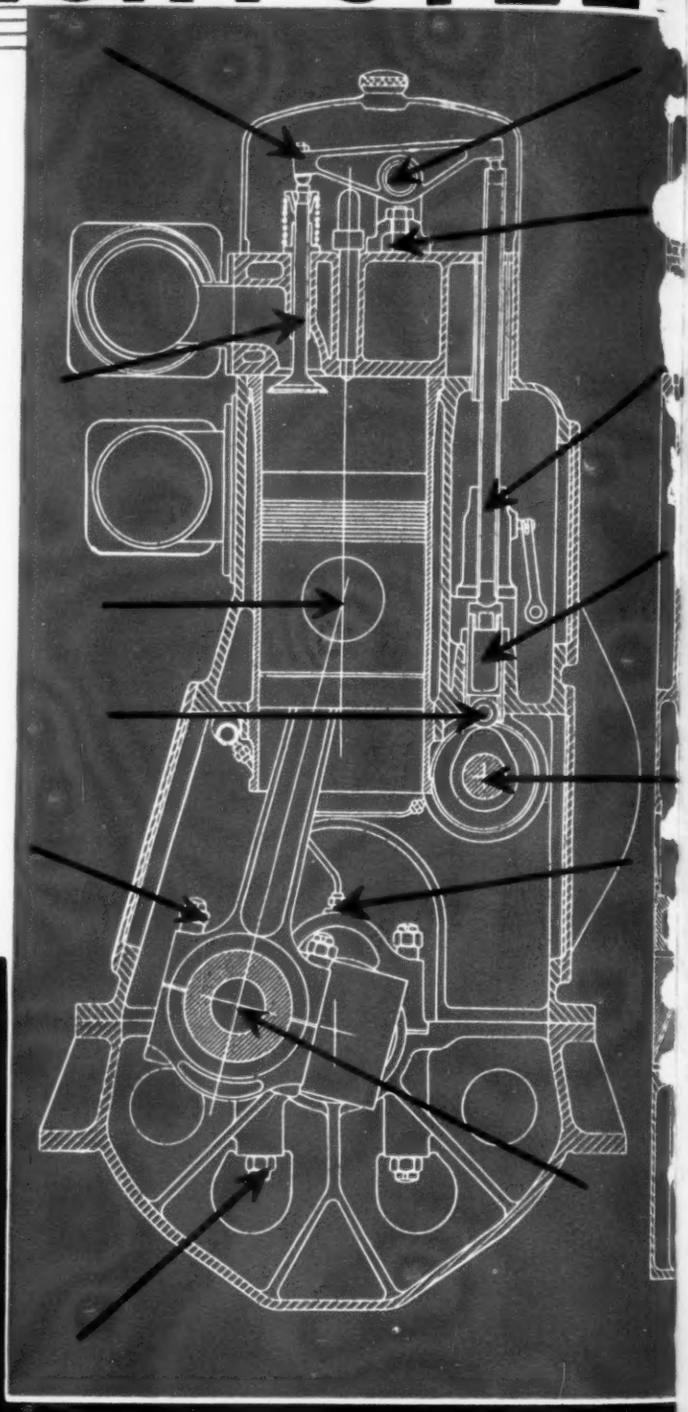
A machine tool manufacturer is advised that the number of steel grades being used can be reduced from six to three. He puts the plan into effect with satisfactory results and reduced inventory.

A domestic appliance producer is shown the advantage of Special Finish bars cut to proper lengths for some of his requirements. The new practice is employed at considerable economy in operating costs.

These are common instances of the assistance given to industry through the efforts of our Field Metallurgical Staff. These highly trained men go right into our customers' plants. They are informed on the most economical machining and heat treating processes. They know steel structure and steel metallurgy. Their authoritative advice is constantly advancing quality of finished parts and economy of both material and production.

You are asked to take full advantage of the Union Drawn Field Metallurgical Service.

UNION DRAWN STEEL CO.
BEAVER FALLS, PA.



UNION DRAWN STEELS

USE THE RIGHT STEEL
FOR THE RIGHT PURPOSE

More Confident as 24% Rate Holds

Steel Needs for Low-Price Autos Heavier—Structural Inquiry Is Vigorous—Producers Talking Higher Prices—Some Railroad Cars Placed

SLIGHTLY greater confidence is manifest in the steel industry as it goes into the fourth consecutive week operating at 24 per cent, automotive requirements continue to broaden moderately, and the 15 per cent wage and salary reduction takes effect.

The situation remains spotty, 24 per cent activity is not remunerative, nothing to supply a substantial lift is in sight; yet there is a more general underlying feeling that the principal hazards to a slow recovery, except perhaps the political one, have been surmounted.

This confidence permeates prices. Producers are serving notice on buyers of semifinished steel, especially sheet bars, that their raw material will cost them $2 per ton more next quarter. At Chicago there is talk of putting sheets up $3 a ton. An unofficial report advances bars, plates and shapes $1 a ton.

Cold-finished bar makers are setting their house in order by establishing a single price base of 1.70c and imposing quantity differentials that will increase the net cost for many users. Producers are determined to retain the savings accruing from the current wage reduction, and if the suggestion of an advance only offsets pressure on prices it will have served a useful purpose.

Assembly of high and medium-price automobiles has contracted sharply, but the steady gait of Chevrolet and Plymouth and the acceleration by Ford are expanding total steel requirements. The June schedule of Ford, to be adopted May 25 and be followed by substantial releases of steel, will be considerably higher than in May.

From Pittsburgh, Chicago, Cleveland and Youngstown come reports of heavier automotive demand for strip steel, especially cold-rolled Some rush orders for sheets have been filled by Pittsburgh district mills. Detroit district mills continue to benefit from rollings for Ford, and that district's operations are the highest of the country.

Following the void in April, miscellaneous car orders last week, including 50 subway cars for New York, totaled 67. The Milwaukee placed its May allotment of rails—2000 tons—with the Illinois Steel Co. Fastening orders by Chicago mills total 4000 tons.

American mills appear definitely to have booked 8300 tons of steel pipe for the oil line in Irak. Current inquiry includes 4400 tons for a gas line in western New York, 1500 tons for the Hetch-Hetchy project of San Francisco, 1200 tons for a gas line near Syracuse, N. Y.

Although actual awards continue below the 1932 weekly average, the total for this week being 5549 tons, structural inquiry is vigorous. New projects requiring slightly over 50,000 tons have developed. Particularly at Buffalo is activity broadening. For grade elimination work the Long Island railroad will buy 25,000 tons. More reinforcing concrete bar work is maturning, though still seasonally light.

Raw materials generally are sluggish, save for a somewhat better movement of pig iron in the lake district. Chicago furnaces have established a differential of 50 cents for lots of 100 tons or over, quoting these at $15.50. A Delaware river pipe maker has received 5500 tons more foreign iron. Scrap prices are soft, another 25-cent reduction being made at Chicago, and the Illinois Central railroad, like the Burlington recently, has refused to accept low prices bid for its accumulation.

Cast iron pipe is down $2 to $4 at Chicago. Light rails are easier. Due to the adjustment in pig iron at Chicago, the iron and steel composite of STEEL is off 4 cents to $29.64. The scrap composite has ceded 8 cents, to $7.13. The finished steel composite is steady at $47.62.

Composite Market Averages

	May 14	May 7	One Month Ago April, 1932	Three Month Ago Feb., 1932	One Year Ago May, 1931	Ten Years Ago May, 1922
Iron and Steel Composite	$29.64	$29.68	$29.75	$29.56	$31.37	$36.49
Finished Steel Composite	47.62	47.62	47.62	46.72	49.02	52.39
Steelworks Scrap Composite	7.13	7.21	7.76	7.89	10.12	14.67

Iron and Steel Composite:—Pig iron billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	May 14, 1932	April, 1932	Feb., 1932	May, 1931
PIG IRON				
Bessemer, del., Pittsburgh	$16.26	16.76	16.96	18.26
Basic, valley	15.00	15.00	15.00	17.00
Basic, eastern del., eastern Pa.	15.00	15.00	15.75	17.00
No. 2 foundry, del. Pittsburgh	16.26	16.26	16.76	18.26
No. 2 foundry, Chicago	15.50	16.00	16.50	17.50
*Southern No. 2, Birmingham	11.00	11.00	11.20	12.00
**No. 2X, Virginia furnace	18.00	18.00	18.00	18.25
**No. 2X, Eastern del. Phila.	15.26	15.66	15.76	17.76
Malleable, valley	15.00	15.50	15.50	17.00
Malleable, Chicago	15.50	16.00	16.50	17.50
Lake Superior, charcoal, del. Chi.	23.04	23.04	23.04	27.04
Gray forge, del. Pittsburgh	15.63	16.13	16.33	17.63
Ferromanganese, del. Pittsburgh	80.24	80.24	80.24	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

COKE				
Connellsville, furnace, ovens	2.15	2.25	2.25	2.45
Connellsville foundry, ovens	3.25	3.25	3.25	3.25
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	26.00	26.00	25.80	29.75
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	29.75
Billets, open-hearth, Pittsburgh	27.00	27.00	27.00	30.00
Wire rods, Pittsburgh	37.00	37.00	37.00	35.00

	May 14, 1932	April, 1932	Feb., 1932	May, 1931
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.50	1.65
Steel bars, Chicago	1.70	1.70	1.60	1.75
Steel bars, Philadelphia	1.91	1.91	1.81	1.94
Iron bars, Chicago	1.65	1.70	1.70	1.80
Shapes, Pittsburgh	1.60	1.60	1.50	1.65
Shapes, Philadelphia	1.75	1.75	1.62	1.76
Shapes, Chicago	1.70	1.70	1.60	1.75
Tank plates, Pittsburgh	1.60	1.60	1.50	1.65
Tank plates, Philadelphia	1.79½	1.79½	1.69½	1.85½
Tank plates, Chicago	1.70	1.70	1.60	1.75
Sheets, No. 10 blue anneal., Pitts.	1.70	1.70	1.70	1.85
†Sheets, No. 24, hot, ann., Pitts.	2.20	2.20	2.15	2.25
Sheets, No. 24, galvan., Pitts.	2.85	2.85	2.75	2.80
Sheets, No. 10 blue aneal., Chi.	1.85	1.85	1.90	2.00
†Sheets, No. 24, hot, ann., Chi.	2.35	2.35	2.35	2.40
Sheets, No. 24 galvan., Chi.	3.00	3.00	2.95	2.95
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.95	1.90
Tin plate, per base box, Pitts.	4.75	4.75	4.75	5.00

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	$9.75	10.20	10.25	11.25
Heavy melting steel, eastern Pa.	6.50	7.20	7.35	9.50
Heavy melting steel, Chicago	6.25	6.55	6.80	8.65
No. 1 wrought, eastern Pa.	7.75	7.95	9.00	11.00
No. 1 wrought, Chicago	5.25	5.85	6.85	8.40
Rails for rolling, Chicago	8.50	8.90	9.85	11.15

Sheets

Orders Still Light—Sheet Bar Advance for Third Quarter Beginning to Strengthen Prices

SHEET PRICES, PAGE 47

Youngstown, O.—The slight increase in sheet demand noted a week ago continues to manifest further progress, particularly for autobody grades. Common black and galvanized also have developed more seasonal activity. Operation of several more sheet mills is being resumed. Gradual speeding up of Ford and Chevrolet production is improving the outlook. The increase of $2 a ton in sheet bars for third quarter announced by some makers may tend to stiffen sheet prices, but this remains to be seen, much depending upon business developed during the summer.

New York—Sheet prices, now undergoing a test, have been strengthened by the $2 advance in sheet bars. This is expected to have a particularly stimulating effect on small sheet mills.

Philadelphia — No improvement is noted in the sheet market, although prices are steady.

Pittsburgh—Sheet prices continue to be held at fairly firm levels, though sizable purchases are lacking. Several rush releases from Detroit automobile builders have been received recently by district mills. In general most consuming lines for all sheet items are dull and fail to exhibit any tendency toward increasing purchases. Hot-rolled annealed hold at 2.20c, Pittsburgh; heavy hot-rolled are 1.55c; galvanized, 2.85c; and autobody, 2.80c to 2.90c.

Buffalo — Demand for sheets continues slow. District mills are operating at 25 to 30 per cent. Purchases by automotive manufacturers have been disappointing.

Cleveland—Sheet demand here has failed to broaden materially, though the Fisher Body Co. has stepped up operations to about half time. Detroit mills are benefiting relatively more from the increase in automotive production. Occasional carload orders are being received from furniture manufacturers. Local barrelmakers have not appeared in the market recently. Some sheet bar producers have notified sheetmakers that bars for third quarter will be advanced $2 a ton, this being considered a precautionary measure against any tendency to reduce sheets. Some weakness has been reported recently in nearby districts in black sheets. Prices here are firm.

Cincinnati — Sheet mills in this district report slightly lower schedules, partly because of lighter demand from the automotive field.

Chicago—Possibility of an advance of at least $3 a ton on sheets for third quarter is being discussed. Some complications, due to the wage reductions, must be dealt with before further announcement is made. The order volume has not dropped appreciably in the last week. No. 24 galvanized sheets are steady at 2.95c, mills. Orders for galvanized roofing products are small.

St. Louis—Sheet producers and distributors report no change from the dull conditions prevailing for several weeks. Ordering is on a hand-to-mouth basis for immediate needs. Demand for galvanized sheets does not show a seasonal improvement.

Birmingham, Ala.—Sheet demand has tapered and mill operations are slower. Some business is expected shortly from agricultural areas.

Claims Record for Safety

When a workman at the Anderson, Ind., plant of the American Steel & Wire Co., fell from a ladder recently and sustained bruises he broke the safety record of 6 years and 34 days without a lost time accident, claimed by the company to be a world's record. In this accidentless period the plant worked 5,054,000 man-hours.

Current Finished Steel Prices

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10
(24 to 48 inches wide)

Pittsburgh, base	1.55c
Gary, Ind. Harbor, base	1.65c
Chicago, del.	1.70c
New York, del.	1.90c
Birmingham, base	1.70c
Philadelphia, del.	1.86c

BLUE ANNEALED NO. 9-10

Pittsburgh, base	1.70c
Chicago, district mills	1.80c
Chicago, delivered	1.85c
Philadelphia, del.	2.01c
New York, del.	2.05c
St. Louis, delivered	2.07½c
Birmingham	1.85c
San Francisco c.i.f.	2.30c

HOT ROLLED ANNEALED NO. 24

Pittsburgh, base	2.20c
Gary, Ind. Harbor, base	2.30c
Chicago, del.	2.35c
New York, del.	2.55c
Philadelphia, del.	2.51c
Birmingham, base	2.35c
St. Louis, del.	2.57½c
San Francisco, c.i.f.	2.80c

GALVANIZED NO. 24

Pittsburgh, base	2.85c
Gary, Ind. Harbor, base	2.95c
Chicago, del.	3.00c
Philadelphia, del.	3.16c
Birmingham, base	3.00c
St. Louis, del.	3.22½c
San Francisco, c.i.f.	3.45c

AUTOMOBILE NO. 20

Pittsburgh, base	2.80c to 2.90c

FURNITURE

Pitts., No. 10 heavy	2.65c
Pitts., No. 20 light	3.15c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.40c to 2.50c
Gary, base	2.50c to 2.60c
St. Louis, del.	2.77½c to 2.82½c

HEAVY COLD ROLLED NO. 10

Pittsburgh, base	2.25c
Gary, Ind. Harbor, base	2.35c
Chicago, del.	2.40c
Philadelphia, del.	2.56c
New York, del.	2.60c
St. Louis, del.	2.62½c

COLD ROLLED NO. 20

Pittsburgh, base	2.75c
Gary, Ind. Harbor, base	2.85c
Chicago, del.	2.90c
Philadelphia, del.	3.06c
New York, del.	3.10c
St. Louis, del.	3.12½c

TIN AND TERNE PLATE
Per 100-pound box, Pittsburgh

Tin plate, coke base	$4.75
Long ternes, 24, unassort.	3.00c

Gary, Ind., base 10 cents higher

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)
F.o.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95
(Per pound)	
Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing, (9-11 ga.)	$55.00
(12½ ga. and lighter)	$60.00
(To Manufacturing Trade)	
Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, del.	1.79½c
New York, delivered	1.90c
Boston, delivered	2.02c
Chicago, base	1.70c
Cleveland, del.	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	1.80c
St. Louis, del.	1.97½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.75c
New York, del.	1.87c
Boston, del.	2.00½c
Chicago, base	1.70c
Cleveland, del.	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.00c
Do., wide flange	2.10c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
Philadelphia, del.	1.91c
New York, del.	1.90c
Boston, del.	2.02c
Pittsburgh, cold finish	1.75c
Pittsburgh, forg. qual.	1.85c

RAIL STEEL

Chicago Heights	1.50c to 1.60c
Eastern mills	1.30c to 1.35c

IRON

Chicago, base	1.65c
New York, delivered	1.85c to 1.95c
Philadelphia, delivered	1.86c to 1.96c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
*Pitts., stock lengths, mill	1.50c
Chi., billet	1.65c to 1.75c
Chi., rail steel	1.55c to 1.60c
Chi., rail steel, road, bridge and culvert	1.55c
Philadelphia, cut lengths	2.06c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

*Base Pittsburgh, Chicago, Buffalo and Cleveland, minimum 10,000 lbs. of a kind and grade	1.70c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel
Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to 6.75 off
Carloads, Chicago dist.	7.00 to 7.50 off

Alloy Steel

Hot Rolled—F.o.b. Mills
Alloy Quality Bars, 2.65c, mill
(Differentials to various classes of consumers)

S.A.E.	Alloy Diff.		
		4600 .20 to .30 Mo.	1.05
2000	0.25	5100 .80 - 1.10	
2100	0.55	Cr.	0.45
2300	1.50	51.00 Cr.	
2500	2.25	spring	0.20
3100	0.55	6100 bars	1.20
3200	1.35	6100 Spring	0.95
3300	3.80	Cr., Ni., Van.	1.50
3400	3.20	Carbon Van.	0.95
4100 .15 to .25		9250 (flats)	0.25
Mo.	0.50	9250 (rds.,sq.)	0.50

Strip, Hoops, Bands

Hot strip, to 6 in., Pitts.	1.60c
Do, 6 1/16 to 24-in., Pitts.	1.50c
Hot strip to 6 in. Chi.	1.60c
Do, 6 1/16 to 24-in.	1.50c
Cooperage hoop, Pitts.	1.60c to 1.70c
Do., Chicago	1.70c to 1.80c
Cold-roll, strip, Pitts., Cleve.	2.00c
Worcester, 3 tons over	2.20c

Rails, Track Material

Standard rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$32.00 to 34.00
Light rails, Chicago	$36.00
Angle bars, mills	2.75c
Spikes, railroad, mills	2.60c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.60c
Spikes, boat, barge, Pitts.	2.90c
Track bolts, Chicago	3.50c
Do. standard, jobbers	73 off list
Track bolts, Chicago	3.50c
Tie plate, mills	$37.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 75 off
Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.
Eagle list ..... 75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 75 off
Tire bolts ..... 60 and 10 off
Stove bolts, 77½, 25 and 10 off in pkgs.; 86 off in bulk.
Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 75 off

HEXAGON CAP SCREWS

Milled ..... 80-10-10-5 off
Upset 1 in. diam. and smaller ..... 85-10 off

SQUARE HEAD SET SCREWS

Milled ..... 80-5 off
Upset, 1 in. and smaller ..... 80-10-5 off
Upset, larger than 1 in. ..... 80-5 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do. less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.05
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Sheet piling, Pitts.	1.90c

Rivets

Struc., c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. and smaller, Pitts., Chicago, Cleve.	70, 10 and 5 off

Bars

More Orders Being Received But All Are Small—Broader Field Being Covered by Buyers

BAR PRICES, PAGE 47

Chicago — Bar mills are holding the gains of a week ago. Additional Ford business will be released this week, although Ford orders apparently will not benefit this market appreciably. Parts and assembly plants have had much of their material shipped to them. Cold finishers, die and forge shops and crankshaft makers have been ordering slightly more material, chiefly for Chevrolet and Chrysler accounts. Soft steel bars are nominal at 1.70c, base, Chicago, and rail steel bars are 1.50c to 1.60c, Chicago Heights.

Philadelphia — Commercial steel bars are quiet but steady at 1.60c, Pittsburgh. Iron bars are 1.60c to 1.65c, Pittsburgh.

Pittsburgh—Soft steel bar demand is apparently maintaining recent weekly minimums. A spotty character of ordering persists from the automotive trade and on such light volume of specifications the base price for carbon bars is maintained without difficulty at 1.60c, Pittsburgh. Alloy steel bars are without improvement and the 2.65c, mill, base is current.

Youngstown, O.—Consumers of common steel bars have been comparatively liberal this week with specifications for miscellaneous lots and the smaller-sized bar mills have been enabled to continue routine rates of operations. Some new alloy steel bar specifications also have been extended from auto parts-makers. Common steel bars are steady at 1.60c, Pittsburgh.

Cleveland—Demand for common steel bars is more diverse, and orders are more numerous, though still small. The price holds at 1.65c, base, Cleveland. For the four months this year the automotive industry took 41 per cent of an independent mill's total output of steel bars, which includes some reinforcing bars. Building and reinforcing work took 20 per cent; agricultural and road equipment, 12 per cent; bolt, nut and rivet manufacturers, 12 per cent; railroads 3 per cent; jobbers 2½ per cent; and the remainder, miscellaneous. This also represents the current distribution of bars.

Hibbard, Spencer, Bartlett & Co., wholesale hardware and jobbers, Chicago, have adopted a group life insurance program totaling approximately $1,000,000, and covering more than 650 eligible employes.

Cold-Finished Prices Put On New Quotation Basis

Cold Finished Prices, Page 47

Pittsburgh — Revised prices on cold-finished steel bars have been announced by a leading producer effective May 16, resulting in a complete change in the method of basing quotations. The new price is 1.70c, base, per 100 pounds on lots of 10,000 pounds or more of one size and grade released for shipment at one time to one destination. Extras apply on smaller lots. Specifications continue quiet, orders lacking improvement over the April rate. Automotive demand is spotty and there is hope for only a mild upturn in demand before the end of the quarter. Turned and ground shafting, 2.35c to 2.80c, Pittsburgh and Cumberland, Md., is unchanged.

Tin Plate Purchases Expected To Increase

Tin Plate Prices, Page 47

Pittsburgh—Tin plate operations are maintaining the 45-50 per cent operating rate recently established. Increased purchases given by can-makers is expected this month or in June. The base price of $4.75 per base box, Pittsburgh, is maintained.

Youngstown, O.—Tin plate mills in this district still are maintaining the general rate of operations around 50 per cent. Shipments to canning and other consuming interests are fairly satisfactory. Business in prospect seems to warrant expectation that this rate will continue well into June.

Plates

Prospects for Pennsylvania Railroad Work Buoy Eastern Markets—Volume Is Larger

PLATE PRICES, PAGE 47

New York—Scattered buying by oil companies features a generally drab market in plates. Alco Products Inc. has booked an order from the Argentine government oil fields for two complete refinery units, but steel requirements have not been definitely established. Fabrication work will be done at the Dunkirk, N. Y., plant of the American Locomotive Co., of which Alco is a division. Passaic Valley Water commission is expected to announce shortly award through Thomas Burke, Philadelphia, contractor, of approximately 2300 tons of large size steel pipe. Plates are steady at 1.70c, Coatesville, on carlots.

Boston—Plate prices are steady, with 1.70c, Coatesville, Pa., applying on light volume in New England. The Holyoke, Mass., fabricator of welded steel pipe has a fair backlog, having booked several hundred tons additional for Danbury, Conn., and Montreal. Plates are about to be placed for a coast guard tender and destroyer to be built by the Maine yard.

Philadelphia — Sentiment in the plate market is buoyed by the prospects for an early resumption of construction work by the Pennsylvania railroad. A considerable proportion of current tonnage is falling short of consummation due to increasingly rigid credit demands by producers. Plate prices are unchanged at 1.70c, base, Coatesville, Pa., for carload lots. Operations have dropped to a new low point.

Pittsburgh—Steel plate business is quiet and in unchanged volume. Awards of river craft continue light with several projects expected to be closed shortly. Small orders still make up the bulk of business. The market is fairly steady at 1.60c, Pittsburgh.

Cleveland—Plate business in the aggregate is slightly better, and prices are firm at 1.60c, base, Pittsburgh. The Toledo, O., council has appropriated for a 1120-foot, 16-inch water line under the Maumee river, and plates may be used. The local 84, 112 and 154-inch plate mills were down last week, and are not scheduled for this week.

Chicago—Western mills will get 425 tons of plates and structural material for the United States engineer's office at St. Louis. Bridge work now constitutes the chief outlet for plates. Improved conditions in the oil indus-

try have not been reflected in refinery plans, although Standard Oil Co. is completing some work at Wood River, Ill.

Contracts Placed

550 tons, coast guard tender and destroyer, to Lukens Steel Co., Coatesville, Pa., by Bath Iron Works, Bath, Me.

500 tons, 60-inch welded pipe, Danbury, Conn., to Walsh's Holyoke Steam Boiler Works, Holyoke, Mass.

400 tons, mainly plates, dredge, to Ingalls Iron Works Co., Birmingham, Ala.

425 tons, pontoons for United States engineer at St. Louis, to St. Louis Structural Steel Co., St. Louis.

350 tons, plates and shapes, two towboats for Inland Waterways Corp to Midland Barge Co., Midland, Pa.

150 tons, tanks, Flushing, L. I., to Downington Iron Works Inc., Downington, Pa.

130 tons, plates and shapes, derrick hull for export to Colombia, South America, to American Bridge Co., Pittsburgh.

100 tons, or more, water line, Montreal, Que., to Walsh's Holyoke Steam Boiler Works, Holyoke, Mass. Specification in addition to previous orders.

Contracts Pending

1500 tons, 60-inch welded steel pipe line for Hetch Hetchy project, San Francisco; bids to be taken soon.

900 tons, gas holder for Southern Counties Gas Co., San Diego, Calif., plans being prepared.

Unfilled Orders of Steel Corp. Off 5.8 Per Cent

New York—Unfilled bookings of the United States Steel Corp. of 2,326,926 tons on April 30 fell to a new low record, the thirteenth consecutive decline. The reduction was 145,487 tons, or 5.88 per cent. Further comparisons follow:

	Unfilled orders	Net change	Per cent change
1931			
Jan. 31	4,132,351	188,755+	4.78+
Feb. 28	3,965,194	167,157—	4.04—
Mar. 31	3,995,330	30,136+	0.73+
Apr. 30	3,897,729	97,601—	2.24—
May 31	3,620,452	277,277—	7.11—
June 30	3,479,323	141,129—	3.89—
July 31	3,404,816	74,507—	2.14—
Aug. 31	3,169,457	235,359—	6.91—
Sept. 30	3,144,833	24,624—	0.77—
Oct. 31	3,119,432	25,401—	0.30—
Nov. 30	2,933,891	185,541—	5.94—
Dec. 31	2,735,353	198,538—	6.77—
1932			
Jan. 31	2,648,150	87,203—	3.19—
Feb. 29	2,545,629	102,521—	3.88—
Mar. 31	2,472,413	73,216—	2.87—
Apr. 30	2,326,926	145,487—	5.88—

Congressional leaders are laying their plans to adjourn by June 10, leaving much important legislation without taking action.

Railroads

Rail Inquiry Light—Chicago Mill Gets 2000-Ton Quota on Milwaukee Purchase, for May

TRACK MATERIAL PRICES, PAGE 47

Chicago—Fresh rail inquiry is lacking, but Chicago, Milwaukee, St. Paul & Pacific has awarded 2000 tons to a local mill as its May quota of 16,000 tons being ordered in monthly installments. Over 4000 tons of track accessories have been placed, including 3500 tons for Great Northern. Rehiring of maintenance-of-way forces by the principal rail lines is becoming active. Illinois Central has added 2600 men; St. Paul, 1600; Chicago & North Western, 900, and Missouri Pacific 750. Chicago, Rock Island & Pacific has filed application for permission for a $3,000,000 loan from the Reconstruction Finance Corp. Other roads have loan negotiations pending. Real economies for the railroads are seen in purchases of motive power. It is pointed out that present-day locomotives outlast those built a decade ago by five to ten years, and that longer runs and greater economies are obtained from the newer units. Therefore, it would not be surprising in the local railway supply market to see motive power purchases before cars.

New York—Award of 50 subway cars by the Interboro Rapid Transit to the American Car & Foundry Co. features railroad buying for the past week. Several small scattering orders practically clean up pending freight car inquiry except 50 to 100 cars for the Wheeling & Lake Erie. Board of transportation of New York will open bids May 17 on frogs and switches.

Pittsburgh—New inquiry for steel products from railroads still fails to put in an appearance, nor is there promise of any immediate change in that direction. However, several carriers are issuing immediate releases on orders booked some time back and in consequence rail and accessory mills here showed a temporary resumption in operations last week. The New York Central railroad's recent inquiry has not been officially closed. Users of light rails have been quiet in specifying and the market on the latter is nominal at $32 to $34.

Car Orders Placed

Alaska railroad, 10 hopper ballast cars to the General American Car Co.

General Chemical Co., two tank cars to American Car & Foundry Co.

Interboro Rapid Transit, New York, 50 subway cars, to American Car & Foundry Co.

Norfolk & Western, steel roofs for 500 box cars, to own shops, Roanoke, Va.

Union Tank Line, 5 tank car tanks, to Graver Tank & Mfg. Corp., East Chicago, Ind.

Rail Orders Placed

Chicago, Milwaukee, St. Paul & Pacific, 2000 tons, as May allotment of 16,000 tons being bought on monthly basis, to Illinois Steel Co., Chicago.

Wire Buying Shows Little Change—Prices Are Steady

Wire Prices, Page 47

Chicago—Wire shipments this month are gaining on April, which failed to exceed February and March shipments. Fencing business still is light. Manufacturers' wire releases are slightly heavier, but remain disappointing. Wire nails at $2, Chicago or western mills, are moving slowly. Wire mill operations are 25 per cent.

Worcester, Mass.—Wire production is falling off slightly. Competition from foreign dealers, especially in woven wire materials, is detrimental. Plain bright wire to dealers holds at 2.30c, base Worcester.

Philadelphia — Dullness rules in the wire market, with prices steady. Wire nails are $1.95, Pittsburgh, and bright wire 2.20c, Pittsburgh. Bids close May 17 on 200,000 feet high tension ignition cable, single conductor, for delivery to the naval aircraft factory here.

Pittsburgh — Releases for wire products still fail to mark any improvement over the low April levels. The merchant wire trade is still quiet and little improvement is noted for plain manufacturers' wire or material to the automotive industry. The prices of 2.20c on plain wire and $1.95 for nails in carloads is being applied without difficulty.

Cleveland—A slightly larger demand for wire and some wire products, including fencing material, is noted. Nail business is dull. Plain wire holds at 2.20c, Cleveland; nails at $1.95, in carloads to jobbers, and $2.10 in carloads to dealers. Wire rods are firm at $37, Pittsburgh and Cleveland.

Structural Shapes

Awards Lighter, but 50,000 Tons Are Added to Pending Jobs—Long Island Railroad To Place More Than 20,000 Tons — Important Government Awards to be Closed

STRUCTURAL SHAPE PRICES, PAGE 47

Philadelphia — The Pennsylvania railroad has filed a supplemental application with the Reconstruction Finance Corp. for a loan of $27,500,000, or half of the amount it originally asked. It is expected that the remainder will be supplied by private banks, and that its construction program calling for an expenditure of $68,000,000 this year will proceed immediately. Under the proposed plan federal money would be available Oct. 1, and private capital would follow immediately on the granting of the government loan. Fabricators are cheered over the prospects for early resumption of the Pennsylvania's program.

Boston — A Buffalo fabricator booked 350 tons for a bridge at Thomaston, Conn. Awards and new inquiries far structural material are light. Rhode Island railroad is taking bids on a 380-ton bridge at Richmond, R. I.

New York—New structural steel requirements are encouraging, tonnage being the heaviest in more than a year. In addition to requirements for federal work now pending, the Long Island railroad will need more than 20,000 tons for construction at Far Rockaway. Close to 13,000 tons for various projects are expected to be closed this week.

Buffalo—The structural shape outlook is improving steadily. A Buffalo fabricator took two awards aggregating 550 tons during the past week. A contract is about to be awarded for a $250,000 armory at Jamestown, N. Y., requiring a tonnage of shapes. A large Buffalo hospital project also is reported nearing a contract.

Pittsburgh—Structural awards and inquiry are at unchanged rates. Several fairly large projects are pending on which action is scheduled to be taken this month. Plain shapes generally are steady at 1.60c, Pittsburgh.

Cleveland—Some fabricators are busier figuring jobs than they were at this time last year, but tonnages are smaller, few jobs amounting to as much as 100 tons. No action has been taken on a number of federal buildings projected for this district, including the superstructure for the Cleveland postoffice.

Chicago—Consumption of structural material has been in excess of mill orders, fabricators' stocks having been drawn upon freely in the last 60 days. Occasionally private work is offered to fabricators if they will take building bonds as part payment. Plain shapes for new business are 1.70c, despite the existence of protections on former 1.60c contracts. A fair amount of work is active in the St. Louis district, including 4000 tons for a federal building, 3000 tons for a municipal auditorium and 2800 tons, municipal bridge approaches.

Birmingham, Ala. — Fabricating shops are operating at about 40 per cent, new business being light. Ingalls Works Co., Birmingham, has been awarded the contract for a dredge which will require 400 tons of steel, including shapes.

Contracts Placed

588 tons, waterfront project, Stockton, Calif., to Pacific Coast Engineering Co., Oakland, Calif.

550 tons, two bridges, to Lackawanna Steel Construction Co., Buffalo.

500 tons, gates, Hoover dam, Boulder City, Nev., to Lakeside Bridge & Steel Co., Milwaukee.

441 tons, bridges for Southern Pacific Co., San Francisco, to Virginia Bridge & Iron Co., Roanoke, Pa.

400 tons, city hall, Van Nuys, Calif., to McClintic-Marshall Corp., Bethlehem, Pa.

350 tons, bridge, Thomaston, Conn., to Lackawanna Steel Construction Co., Buffalo; Lee Construction Co., Boston, contractor.

250 tons, grandstand, Boston, to Wayne Iron Works, Wayne, Pa.

250 tons, grain elevator, Quaker Oats Co., Akron, O., to Biggs Boiler Works Co., Akron, O., through James Stewart Corp., Chicago.

216 tons, convent, Scranton, Pa., to Bauman Iron Works, Reading, Pa., previously reported in error to Lehigh Structural Steel Co. Allentown, Pa.

210 tons, Schrafft store, Chestnut street, Philadelphia, to Morris, Wheeler & Co., Inc., Philadelphia.

182 tons, building, S. H. Kress & Co., Daytona Beach, Fla., to Virginia Bridge & Iron Co., Roanoke, Va.; G. A. Miller, Tampa, Fla., general contractor.

160 tons, crane tower, Jersey City, N. J., to American Bridge Co., New York.

150 tons, highway bridge, Madison County, Ill., Missouri Bridge & Iron Co., St. Louis.

150 tons, shapes and bars, truck freight terminal, Dallas, Tex., to unstated fabricator; Henger & Chambers, Dallas, general contractors.

150 tons, postoffice, Mankato, Minn., to Minneapolis Steel & Machinery Co., Minneapolis; through C. H. Peterson & Co. Inc., Minneapolis.

150 tons, capitol dome, Springfield, Ill., to Mississippi Valley Structural Steel Co., Decatur, Ill.

119 tons, bridge, Randolph county, Mo., to Stupp Bros., Bridge & Iron Co., St. Louis.

115 tons, state bridge, Erie county, New York, to F. L. Heughes & Co., Rochester, N. Y.

111 tons, beam span, Paris, Mo., to Illinois Steel Bridge Co., Jacksonville, Ill.

107 tons, truss span, LaGrange, Mo., to Stupp Bros. Bridge & Iron Co., St. Louis.

100 tons, piling and structurals for steel fence on Chicago Century of Progress exposition grounds, to Inland Steel Co., Chicago.

100 tons, Goodyear hangar, municipal airport, Chicago, to Austin Co., Cleveland.

100 tons or more, school and other buildings, Loyola university, Louisiana, to Southern Steel Co., Birmingham, Ala.

100 tons, boiler house, city hospital, Boston, to Boston fabricator, through John Bowen Co.

Unstated tonnage, piling, municipal dock, Passaic, N. J., to Carnegie Steel Co., bought direct; Linde-Griffith Construction Co., Newark, N. J., general contractor.

Awards Compared

	Tons
Awards, week ended May 14	**5,549**
Awards, week ended May 7	**11,551**
Awards, week ended Apr. 30	**15,335**
Awards, this week in 1931	**18,677**
Av. weekly awards, 1931....	**34,236**
Av. weekly awards, 1932..	**13,486**
Av. weekly awards, April..	**11,527**
Awards to date, 1931	**799,166**
Awards to date, 1932	**269,725**

Contracts Pending

25,000 tons, grade elimination work, Long Island railroad, Far Rockaway, N. Y., in addition to 12,000 tons for Valley Stream, general contract bids being in on the latter.

4575 tons, steel piling, cutoff walls, Cairo, Ill., Caruthersville, Mo., and Helena Ark.; bids June 2, United States engineer, Memphis, Tenn.

4000 tons, federal building, St. Louis.

3000 tons, municipal auditorium, St. Louis.

2800 tons, approaches for municipal bridge, St. Louis.

2000 to 3000 tons, for cableways for Six Companies, Boulder City, Nev.; bids to be taken soon.

1000 tons, sheet piling for Six Companies, Boulder City, Nev.; bids to be taken soon.

750 tons, three highway bridges, Sylvania, Wash.

750 tons, bridges for Missouri highway commission.
721 tons, H street bridge over American river, Sacramento, Calif.; bids opened.
600 tons, Green river highway bridge for state of Washington; plans being prepared.
500 tons, science building, Georgetown university, Washington.
500 tons, boiler house, Ft. Wayne, Ind.
400 tons, powerhouse, Vernon, Calif.; bids May 23.
260 tons, Garwood Ferry bridge for San Joaquin county, Calif.; bids May 23.
248 tons, El Capitan dam, San Diego, Calif.; general contract to T. E. Connolly, San Francisco and H. W. Rowe, Los Angeles.
225 tons, tunnel structures for Hetch Hetchy project, San Francisco; bids June 6.
170 tons, substation, West Hollywood, Calif.; Kyle Construction Co., Los Angeles, and McClintic-Marshall Corp., Bethlehem, Pa., low bidders on two alternates.
165 tons, store, Pittsburgh, for W. T. Grant Co.; Martin & Nettrour Contracting Co., Pittsburgh, general contractor.
125 tons, five bridges for Monterey county, Calif.; new bids May 20.
114 tons, postoffice and courthouse, Miami, Okla.; James I. Barnes, Logansport, Ind., contractor.
110 tons, school, Greensburg, N. Y.
100 tons, Boston & Albany railroad bridge, western Massachusetts.
100 tons, building, Norwich Free Academy, Norwich, Conn.
100 tons three bridges near German for Los Angeles county, Calif.; bids opened.
100 tons, bridge, New Haven railroad, Buckland, Mass.; Lathrop & Shea, low.
Unstated, $1,025,000, postoffice, Sioux City, Iowa, bids June 8.
Unstated $450,000 federal building, Jefferson City, Mo., bids May 26.
Unstated, $450,000 federal building, tural department building, Washington, Aronberg-Fried Co., Inc., New York, low for general contract.

Concrete Bars

Orders Gaining—Heavy Imports for Eastern Work—1000 Tons Placed for Los Angeles Building — 1200 Tons Pending for San Diego Dam—Road Jobs Numerous

REINFORCING BAR PRICES, PAGE 47

New York—Highway and bridge requirements are slightly heavier, although light for this period. About 200 tons for two Grand Central parkway sections have been placed, also 500 tons for an upstate bridge, and 400 tons for a New Jersey commercial building. Pending tonnage for the Long Island railroad projects is heavy. Foreign and rerolled material have a depressing influence on the reinforcing steel market, although prices on structural billet material are holding fairly well.

Boston—For the Veterans' hospital, Togus, Me., 350 tons of bars have been placed, also 170 tons for the Gloucester postoffice. While highway and bridge requirements in New England show some increase, tonnage is below normal. Nearly 1000 tons of foreign steel is reported to have arrived for one construction job.

Philadelphia — An award of 225 tons of concrete bars for the state prison at Graterford, Pa., to Edward T. Edwards, Columbia, Pa., features the market. Some additional sizable work is expected to be placed soon. The price of 1.75c, Pittsburgh, on cut lengths is subject to concessions on attractive business.

Pittsburgh—Pending reinforcing steel bar work is showing a steady gain and a fairly good outlook for awards is held for the coming month. Actual jobs being placed at present still are small and in a number of instances are being split among several suppliers.

Cleveland—West Virginia Rail Co., Huntington, W. Va., will supply 320 tons of concrete bars for Quaker Oats Co.'s grain elevator at Akron, O., James Stewart Corp., Chicago, being general contractors. The N. G. Christman & Burke Co., Detroit, is low on contract for a sewage disposal plant at Norwalk, O., requiring 200 tons. Several grade crossing jobs in the vicinity of Cleveland are being projected. Stock lengths of new steel billet steel bars now are 1.50c, Cleveland mill, to fabricators.

Chicago—Less than 500 tons of reinforcing bars have been let, including road work. Among orders placed are 250 tons for the Rockford, Ill., postoffice. Missouri highway commission is purchasing 1000 tons of bars for road work, in addition to previous orders. Billet reinforcing bar prices are nominal.

Awards Compared

	Tons
Awards, week ended May 14	**5,248**
Awards, week ended May 7	**2,454**
Awards, week ended Apr. 30	**2,408**
Awards, this week, 1931	**6,360**
Av. weekly awards, 1931	**6,808**
Av. weekly awards, 1932	**4,510**
Av. weekly awards, April	**4,661**
Awards, to date, 1931	**140,517**
Awards to date, 1932	**90,202**

Contracts Placed

1000 tons, Los Angeles Times building, Los Angeles, to unnamed interest.
500 tons, waterfront project, Stockton, Calif., to Concrete Engineering Co., San Francisco.
500 tons, Troy-Menands bridge, New York, to Albany Iron & Steel Co., Albany, N. Y.
463 tons, grandstand, Los Angeles county fair grounds, Pomona, Calif., to Blue Diamond Co., Los Angeles.
400 tons, building, Sears, Roebuck & Co., Hackensack, N. J., to Truscon Steel Co., Youngstown, O.
350 tons, additional buildings, Veterans' hospital, Togus, Me., to Northern Steel Co., Boston.
320 tons, grain elevator, Quaker Oats Co., Akron, O., to West Virginia Rail Co., Huntington, W. Va.
300 tons, warehouse for Honolulu Contracting & Draying Co., Honolulu, T. H., to unnamed interest.
250 tons, Rockford, Ill., postoffice, to Joseph T. Ryerson & Son Inc., Chicago.
225 tons, state prison, Graterford, Pa., to Edward T. Edwards Columbia, Pa.
170 tons, postoffice, Gloucester, Mass., to Kalman Steel Corp., Bethlehem, Pa.
160 tons, Illinois road work, to Calumet Steel Co., Chicago.
150 tons, Addison Gilbert hospital, Gloucester, Mass., to E. Van Noorden Co., Boston.
150 tons, plant for El Dorado Oil Co., Oakland, Calif., to Truscon Steel Co., San Francisco.
110 tons, highway section, Grand Central parkway, New York, to Truscon Steel Co., Youngstown, O.
100 tons, highway section, Grand Central parkway, New York, to Fireproof Products Co., New York.
100 tons, city hall, Van Nuys, Calif., to unnamed interest.

Contracts Pending

1200 tons, El Capitan dam, San Diego, Calif.; general contract to T. E. Connolly, San Francisco and H. W. Rowe, Los Angeles.
1000 tons, Missouri road surfacing work; bids May 12, at Jefferson City, Mo.
725 tons, tunnel structures, Hetch Hetchy project, San Francisco; bids June 6.
400 tons, federal penitentiary, Milan, Mich.
400 tons, five industrial buildings, Sunnyvale, Calif., naval air station.
350 tons, glass plant, Dearborn, Mich., for Ford Motor Co.
300 tons, grain elevator, Oswego, N. Y.
250 tons, state highway, Long Ridge road, Stamford, Conn.
250 tons, building, Sears, Roebuck & Co., Union City, N. J.; bids being taken.
240 tons, Panama, Laclede Steel Co.,

St. Louis, low.

200 tons, sewage disposal plant, Norwalk, O.; H. G. Christman & Burke Co., Detroit, low.

200 tons, including some piling, state bridge, Broad Ripple, Ind.

150 tons, state highway, western Massachusetts.

130 tons, cut-off walls, Cairo, Ill., Caruthersville, Mo., and Helena, Ark.; bids June 2, United States engineer, Memphis, Tenn.

100 tons, bars and shapes, postoffice, Putnam, Conn.; Tremaglio Bros., Waterbury, Conn., low.

100 tons, bars and shapes, postoffice, Plainview, Tex.; W. B. Smith, Eldorado, Ark., low.

100 tons, Veterans' hospital, Danville, Ill.; H. B. Ryan Co., Chicago, general contractor.

100 tons, highway structures for six counties, Butte, Mont.; bids opened.

Semifinished Up $2 Per Ton for Third Quarter

Semifinished Prices, Page 54

Cleveland — Though a valley producer of semifinished steel has announced an advance of $2 a ton to $28, Youngstown or Cleveland, for sheet bars, billets and slabs for third quarter the Cleveland producer has not yet determined what its price policy will be. The advance on sheet bars was announced primarily to avert unsettlement in sheet prices for third quarter.

Youngstown, O.—Practically all consumers of sheet bars, billets and slabs are covered by contract for the remainder of the second quarter, so that the advance of $2 a ton for delivery in the third quarter, announced by some makers, is not considered especially significant at this time. Such an advance would make the price of sheet bars $28, Youngstown, O., and Cleveland; and if extended to billets and slabs would bring them to $29, same bases. It is bethem to $29, same bases.

Philadelphia — Forging plants are operating only one or two days a week, and this is reflected in continued light demand for billets.

Pittsburgh—Releases to producers of semifinished material thus far in May display no upward trend over the comparable April period. Forging billets are quieter. Though the market is without change at $26 to $27, Pittsburgh, or Youngstown, O., for sheet bars, slabs and billets, there is prospect of higher asking prices for next quarter, an advance of $2 being proposed. Wire rods hold at $37 a ton, Pittsburgh.

Chicago — Some producers are quoting $29, Chicago, for sheet bars. This is an advance of about $2 a ton. Billets and blooms are unchanged at $28, Chicago.

Pipe

Americans Reported to Have Taken 8000 Tons for Irak— 20-Mile, 10-inch Line Projected

PIPE PRICES, PAGE 62

New York—The National Tube Co. has taken 8000 tons of pipe for the Irak Petroleum Co.'s line, according to an unconfirmed report here. Silas M. Newton, 150 Broadway, New York, is inquiring for 4400 tons of 6, 8 and 14-inch gas pipe for western New York. A moderate tonnage also is on inquiry for the Argentine oil fields. The Argentine government has placed approximately 4000 tons in this country so far this year, a larger amount going to European pipemakers. Two state projects, taking close to 800 tons of cast pipe, went to the Phillipsburg foundry. New inquiry is light. Morristown, N. J., is buying 500 tons.

Boston—Cast pipe orders are fairly numerous, but most cities and towns are buying only small lots. Utilities also are purchasing sparingly. The New England pipe foundry has acquired a moderate backlog. About 1000 feet of small galvanized wrought pipe for the Charlestown navy yard is up. Cast pipe prices are weak.

Buffalo—Plans are reported well advanced for a 20-mile gas line from Horseheads, N. Y., in the direction of Syracuse and Cortland. Pipe 10 inches or larger will be used. Several other projects of importance also are in a formative stage.

Pittsburgh—Approximately 8300 tons of 10-inch line pipe for the Irak Petroleum Corp. line is believed to have been placed with an American producer. This business may later be subdivided among other domestic pipe mills. Award of this work leaves the market virtually devoid of actively pending line tonnages. Pipe shipments to the oil districts is maintaining a slightly better trend.

Youngstown, O.—Merchant pipe production appears to have taken first place in this branch of the trade, with the bulk of demand for butt-welded. Specifications keep only a portion of the district's pipe industry busy. Line pipe orders, such as go to electric-welded plants, are infrequent and for small lots, principally fill-in orders for 8 to 10-inch.

Cleveland — Pipe requirements here are at a low ebb. Buying by jobbers is considerably below normal. A light volume of business is coming from building construction work. Prices are steady.

Chicago—Bids are being submitted on about 500 tons of cast pipe for the Washburn, Campbellsport and Kohler, Wis., waterworks plants. St. Louis has tabulated bids on 1500 tons of 36-inch for pressure work, and 200 tons of 16, 20 and 24-inch drainage pipe for a waterworks settling basin, the latter to be bought through a general contractor. Canton, O., took bids May 12 on 11,000 feet of 4, 6 and 8-inch. Irregular prices are shown in bids, which have reduced Chicago delivered prices about $2 a ton.

Birmingham, Ala. — Production of cast iron pressure pipe has been reduced considerably, but output of soil pipe has improved, two plants calling ing back to work nearly 300 men.

Cast Pipe Placed

500 tons up to 24-inch, state project, Wingdale, N. Y., to Warren Foundry & Pipe Co., Wharton, N. J.

300 tons, up to 30-inch, state hospital, Brentwood, N. Y., to Warren Foundry & Pipe Co., Wharton, N. J.

300 tons, mainly 6 and 8-inch, Arlington, Mass., to Warren Foundry & Pipe Co., Wharton, N. J.

100 tons, small sizes, Whitman, Mass., to Warren Foundry & Pipe Co., Wharton, N. J.

200 tons, 6 and 8-inch, Colfax, Wash., to Universal Pipe Co.

100 tons, 12-inch, centrifugal, Tacoma, Wash., to R. D. Wood & Co., Philadelphia.

100 tons of 4 and 6-inch, centrifugal, Fort Lewis, Wash., to R. D. Wood & Co., Philadelphia, and American Cast Iron Pipe Co., Birmingham, Ala.

Cast Pipe Pending

1500 tons, 36-inch for St. Louis; bids May 10.

500 tons, 4 to 12-inch, Morristown, N. J., bids in.

375 tons, 4, 6 and 8-inch, El Paso, Tex., Universal Pipe Co. low on 4-inch and R. D. Wood & Co., Philadelphia, low on 6 and 8-inch.

200 tons, small sizes, Latham's Corners, N. Y.

200 tons, 16, 20 and 24-inch for waterworks drainage, St. Louis; bids May 10.

11,000 feet, 4, 6 and 8-inch for Canton, O.; bids May 12.

5000 feet, 6 to 12-inch for Monroe, Mich.

2200 feet, 6 to 24-inch for Toledo, O.; bids in.

Steel Pipe Pending

64,000 feet, natural gas distribution pipe, valves and fittings for Oswego, Kans. Emporia Engineering Co., Emporia, Kans., engineer.

4400 tons, 6, 8 and 14-inch gasoline, western New York, bids being taken by Silas M. Newton, 150 Broadway, New York.

Unstated tonnage, Argentine government oil fields.

Strip

Broader Market Developing in Some Centers — Automotive Needs Give Encouragement

STRIP PRICES, PAGE 47

Pittsburgh—Both hot and cold-rolled strip releases fail to improve, although from some quarters specialty and corrosion-resistant strip has been in better demand recently. Shipments to the Detroit district on automotive work are showing only minor gains. Base prices of 1.50c for wide, and 1.60c for narrow hot-rolled, apply on current billings. Hot-rolled strip mill production averages under 20 per cent, with cold-rolled output less. Base of 2.00c, Pittsburgh, on cold-rolled is being applied.

Philadelphia—Hot-rolled strip is unchanged at 1.40c and 1.50c, Pittsburgh, and cold-rolled 2.00c, Pittsburgh. No improvement in demand has taken place.

Youngstown, O.—Some broadening in demand for cold-rolled narrow strip from auto partsmakers has supplemented the hot-rolled needs of stampers, which have held fairly steady for the past fortnight. Consumers for the most part continue to cover cautiously. Quotations are steady and unchanged.

Cleveland—A slight improvement is noted in the market for strip steel, and prices are steady at 1.40c and 1.50c, Pittsburgh, for wide and narrow hot-rolled, respectively, and 2.00c, Cleveland, for cold-rolled. Comparatively little is coming from the automotive industry, while agricultural and building hardware lines are slow. Demand from stovemakers shows more life.

Chicago—Hot and cold-rolled strip mills are obtaining scattered automobile business. May releases will show gains over April. Cold-rolled strip is quoted at 2.00c, Pittsburgh-Cleveland, although concessions are being made at some points.

Steelmaking Operations Are Steady at 24 Per Cent

Pittsburgh — Ingot production shows only minor fluctuations and the rate during the past week held at 21 per cent. Blast furnace schedules also were unchanged at 9 active steelworks furnaces out of 54. Sheet output continued at 25 with tin plate operations easier at slightly above 45. Strip production continued at 20 with pipe down to 15.

Philadelphia—Complete suspension at two plants contributed materially to a reduction of over a point in eastern steelmaking operations last week to 13-14 per cent, lowest in years. These suspensions are temporary.

Cleveland—Steel ingot production was advanced to 32 per cent from 26 per cent May 12, and will continue at 32 per cent this week. This gain was due to the lighting of two open hearths by the Otis Steel Co. American Steel & Wire Co. continues with five, and Corrigan, McKinney Steel Co. with four. None of the Otis Steel Co.'s plate mills is in operation, and other finishing mill operations are irregular.

Operations, week ended May 14	**24**
Operations, week ended May 7..	**24**
Operations, week ended April 30	**24**
Operations, this week, 1931....	**47**
High for 1932, Feb. 6.....	**28.5**
Low for 1932—Jan. 2, Apr. 9, 16	**22**

Chicago — Ingot production this week is scheduled to hold the increased mark of last week at 20 to 22 per cent. This compares with 50 per cent a year ago. Illinois Steel Co. has blowing half of the eight active steelworks blast furnaces. Sheet mills have been dropping off lately.

Buffalo—Buffalo district steelworks will increase their operating rate five points this week, it is expected, due to staggered schedules in one plant. Tentative schedules call for 12 furnaces to be in operation, representing 32 per cent.

Birmingham, Ala.—Based on ingot production, steel mill operations have held to the 45 per cent schedule, Gulf States Steel Co. operating two open hearths at Gadsden and Tennessee Coal, Iron & Railroad Co. nine at Ensley-Fairfield. The drop expected the past week is looked for this week.

Warehouse Activity Holds Pace in Many Small Orders

Warehouse Prices, Page 62

New York—Warehouse volume is light and unchanged, substantial orders and inquiry being few. Jobbers are considering a price advance on bolts, but have taken no definite action. A change in pricing of cold-rolled products is also being discussed.

Boston — Warehouse prices for bolts are stronger at 65 off list, quotations on sheets, plates, shapes and other products being fairly well maintained. Volume is light but well spread, aggregate buying showing little seasonal improvement.

Philadelphia—Warehouse trading shows a further decline but prices have undergone no change from previous levels.

Pittsburgh—Sales continue at the quiet rate of the past six weeks with little change in number or size of orders. Prices are unchanged.

Cleveland—The monthly volume of warehouse business so far this year has shown slight variation. Though sales were slower in the past week, the May total is expected to about equal that of the prior months. Prices are steady.

Detroit—May demand for iron and steel out of warehouse about equals the early April rate, which in turn was improved over the preceding months. No change is in prospect.

Cincinnati — Warehouse activity has remained about the same for the last six weeks. Demand is varied, except for extreme dullness in building steel. Quotations are unchanged.

Chicago—Steel warehouse orders are holding their own. Buyers are taking numerous items on individual orders. Miscellaneous demand is expected to be much more clarified in the next 30 days. Prices are unchanged.

St. Louis—Business of iron and steel warehouses, while still spotty and irregular, is holding its own.

Lack of Ore Inquiries Delays Price Determination

Iron Ore Prices, Page 54

Cleveland—Iron ore requirements have not yet developed to the point where prices might be determined. No inquiries are in the market. Active efforts are being made by mining companies in Michigan to have taxes reduced. No iron ore was received at Lake Erie ports in April, while last year receipts amounted to 9410 tons. April receipts at other lake ports, principally Indiana Harbor, amounted to 26,245 tons, compared with 106,086 tons a year ago. Stocks on Lake Erie docks May 1 were 5,517,051 tons; last year 5,429,721 tons.

Raw Material Prices

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago furnace	$15.50 to 16.00
Pittsburgh, dist. fur.	15.50 to 16.00
Pittsburgh, delivered	16.13 to 17.13
Valley furnace	15.00
Cleveland fur., local del.	15.50
Philadelphia, delivered	14.76 to 15.01
Virginia furnace	17.50
Granite City, Ill., fur.	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	19.91 to 20.41
Buff., all-rail, Brooklyn	19.40 to 19.90
Buff., all-rail, Newark	17.78 to 18.28
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	16.50 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	19.90 to 20.40
Buffalo, all-rail Newark	18.28 to 18.78
Buff., all-rail, Boston	20.91 to 21.41
Virginia furnace	18.00
Eastern, del. Phila.	15.26 to 15.51

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila.	15.76 to 16.01

MALLEABLE

Valley furnace	15.00
Cleveland fur., local del.	15.50
Pittsburgh dis. fur.	15.50 to 16.00
Pittsburgh, delivered	16.63 to 17.13
Chicago, furnace	15.50 to 16.00
Buffalo fur., local del.	16.50
Eastern Penna., delivered	16.13 to 19.41
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Eastern Penn., del.	15.00
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.50 to 15.00

BESSEMER

Valley furnace	15.00 to 15.50
Pittsburgh, delivered	16.13 to 17.13
Pittsburgh, furnace	15.50 to 16.00

LOW PHOS.

Valley fur., standard	25.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	14.50
Pittsburgh district fur.	15.00 to 15.50
Pittsburgh, delivered	15.63 to 16.63

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19.50; 15—$23 to $24.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

Beehive Ovens

Connellsville furnace	$2.15 to 2.25
Connellsville foundry	3.25 to 4.25
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.21 to 8.81
Chicago, ovens	7.50
New England, del.	10.00
St. Louis, del.	8.50
Birmingham, ovens	4.50
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	5.50
Portsmouth, O., ovens Connell., basis	5.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, del.	8.50

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports	
Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.50 to 9.00
North African low phos.	7.50 to 8.50
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.00
Newfoundland fdy., 55%	8.00
Tungsten, spot, short ton unit, duty paid	$10.25 to 10.50
Chrome ore, 48% gross ton c.i.f.	$17.00 to 18.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	24 cents
South African, 52%	22 to 23 cents
South African, 49-51%	21 to 22 cents
South African, 44-47%	20 to 21 cents
Indian, 48-50% (nom.)	22 cents
Brazilian, 46-48% (nom.)	18 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$38.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	38.00
Joliet, Ill., East Chicago, Ind.	47.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$61.50

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$27.00
Pittsburgh, bessemer	27.00
Youngstown	27.00
Cleveland	27.00
Philadelphia	32.75
Chicago	28.00
Forging, Chicago	34.00 to 35.00
Forging, Pittsburgh	33.00
Forging, Philadelphia	38.75 to 39.75

SHEET BARS

Pittsburgh	26.00 to 27.00
Youngstown	26.00
Cleveland	26.00
Chicago	27.00

SLABS

Pittsburgh	27.00
Youngstown	27.00
Cleveland	27.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	36.00 to 38.00

SKELP

All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$75.00
*Ferromanganese, del. Pittsburgh	80.24
Spiegeleisen, 19-20%, domestic fur. spot†	27.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do, 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(Spot prices, $5 a ton higher.)	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis, (18 per cent)	85.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.	113.50
Ferromolybdenum, stand. 50-60 per cent. per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	.80

†Carloads. Differentials apply to quant
*To users of carloads to 1000 tons annually. Differentials to large users.

Fluorspar

85 and 5 per cent grade

Washed gravel, domes., net ton, del. Pitts. equiv.	$20.31
Washed gravel, import duty paid tide. gross ton	19.50

Pig Iron

Tonnage Is Smaller in Most Districts—Prices Adjusted to Size Of Order at Chicago

PIG IRON PRICES, PAGE 54

Pittsburgh—Pig iron buying shows no improvement and the only new business in prospect is an inquiry from a large user of bessemer iron in this district for requirements over the remainder of the year. Inquiry otherwise is lacking, while shipments are at the slow rate of the past several weeks. Prices are nominal at $15.50 to $16, Pittsburgh, for bessemer, foundry and malleable grades.

Boston — Domestic pig iron prices are holding on small volume of sales. The range for Everett, Mass., iron is unchanged at $16.50 to $17.50. Low prices for foreign iron have failed to stimulate sizable business. The Draper Corp., Hopedale, Mass., is reported inquiring for a substantial tonnage, with the possibility of closing on 1000 tons.

New York—Pig iron prices are steady. A Connecticut melter is in the market for a moderate tonnage, and the American Locomotive Co. is inquiring for 100 tons for Schenectady, N. Y.

Philadelphia — An importation of 5500 tons of English iron is billed to a Delaware river pipemaker, on a standing contract for 20,000 tons reported several weeks ago. This is the second shipment, the third being expected in about a month. A contract for $600,000 worth of dies has been awarded by Citroen of France to the Edward G. Budd Mfg. Co., Philadelphia; for this work local foundries will need 800 to 1000 tons of pig iron.

Buffalo — Buffalo producers appear to have made no progress in their effort to regain their eastern seaboard business. Nothing has been heard to indicate that they obtained any considerable portion of tonnage on which prices were quoted recently.

Youngstown, O.—Small lots of No. 2 foundry and malleable pig iron filter out of furnace stock piles occasionally, supplementing the hot-metal sales to adjoining ingot-mold shops. No change is noted here in blast furnace activities.

Cincinnati—Carload buying dominated the market during the past week. Shipments on contracts reflect the same dull situation.

Cleveland—More pig iron has been sold so far this month by some lake merchant furnaces than in the comparable period last month, and shipments also are better. Volume, however, still is light, and inquiries are few and small. For local delivery, prices hold at $15.50, base, Cleveland.

Chicago—No improvement has occurred in merchant iron sales. Shipments to the automotive markets are likely to gain further this month. Extraordinary caution is exercised by merchant sellers in regard to credit terms. Price adjustments have been made to stabilize the market, small lots being held at $16, base, Chicago, with $15.50 applying for 100 tons or more.

St. Louis—The low stage of the melt in this district is reflected in the scant purchasing of pig iron. New orders in the past week comprised a few small lots, the largest 150 tons.

Birmingham, Ala—Small orders are less numerous and the volume of business is noticeably lower. Production probably will be reduced in a few days.

Toronto, Ont.—Merchant pig iron sales in this district totaled 500 tons in the past week. Some better orders are in prospect as more inquiries have appeared for 100 and 200-ton lots. The melt continues at about 30 per cent.

Who's Who on Program of Iron and Steel Institute

(*Concluded from Page* 16)

ham, general metallurgist for the Jones & Laughlin Steel Corp., Pittsburgh. It is, "A Modern Conception of Steel Quality". All of Mr. Graham's industrial career has been spent in the Jones & Laughlin plants in the Pittsburgh district. Born at Johnstown, Pa., June 29, 1891, he was graduated from the metallurgy class of Lehigh university, Allentown, Pa., in 1914. Later in the same year he joined the Jones & Laughlin interests; there he has remained since in various but progressive capacities. He belongs to the leading metallurgical societies of the United States, Great Britain and Germany.

□ □ □

FLEXIBILITY in the Use of Blast Furnace and Coke Oven Gas in the Steel Plant" is a joint effort of Julius Strassburger, assistant chief engineer of the Weirton Steel Co., Weirton, W. Va., and C. A. Meissner, manager of the coke works of the same company. Following his graduation as mechanical engineer from the Stevens Institute of Technology, Hoboken, N. J., in 1921, Mr. Strassburger became an instructor for one year in that institution. In 1924 he went with the Weirton company as combustion and fuel engineer.

□ □ □

FROM his conning tower in the National Association of Flat Rolled Steel Manufacturers, George H. Charls, its president, can well appraise "The Economic Value of the Steel Industry to the United States". A native of Cincinnati and a graduate of its university, Mr. Charls entered the steel industry via the American Rolling Mill Co. He was vice president in charge of sales in 1918 when he left to go with the Berger Mfg. Co. Absorption of that company by the United Alloy Steel Corp. led to his eventually becoming president. On formation of the Central Alloy Steel Corp. he resigned. In May, 1927, Mr. Charls was appointed commissioner of the Hot Rolled Strip institute; in February, 1928, he headed up its successor—the Flat Rolled group.

□ □ □

E C. Smith, whose paper is "Stainless Steel Production — Equipment and Method of Manufacture," was born at New Brighton, Pa. After graduation from Ohio State university in 1913 he did special work at the university, went to the Gary works of the United States Steel Corp., did special work at Columbia university and returned to Ohio State as an instructor. During the war he was connected with the aircraft production office at Pittsburgh. Since 1919 he has been with the Republic Steel Corp. and its predecessors, at present being assistant district manager of the Central Alloy division of Republic.

□ □ □

C A. MEISSNER, who collaborates with Julius Strassburger on the paper "Flexibility in the Use of Blast Furnace and Coke Oven Gas in the Steel Plant," also is an official of the Weirton Steel Co., being manager of its coke works. He superintended building of the works by the Koppers Co., Pittsburgh, is a graduate of Cornell university, and has been associated with the Oliver Iron Mining Co., Inland Steel Co., Wheeling Steel Corp. and the Koppers Co.

Chapman-Price Steel Co., Indianapolis, has redeemed $314,000 of preferred stock.

Scrap + Baling = $$$

WE BUILD

BALING PRESSES

HYDRAULIC PRESSURE PUMPS

HYDRAULIC STRAIGHTENERS

SPECIAL HYDRAULIC PRESSES

ACCUMULATORS

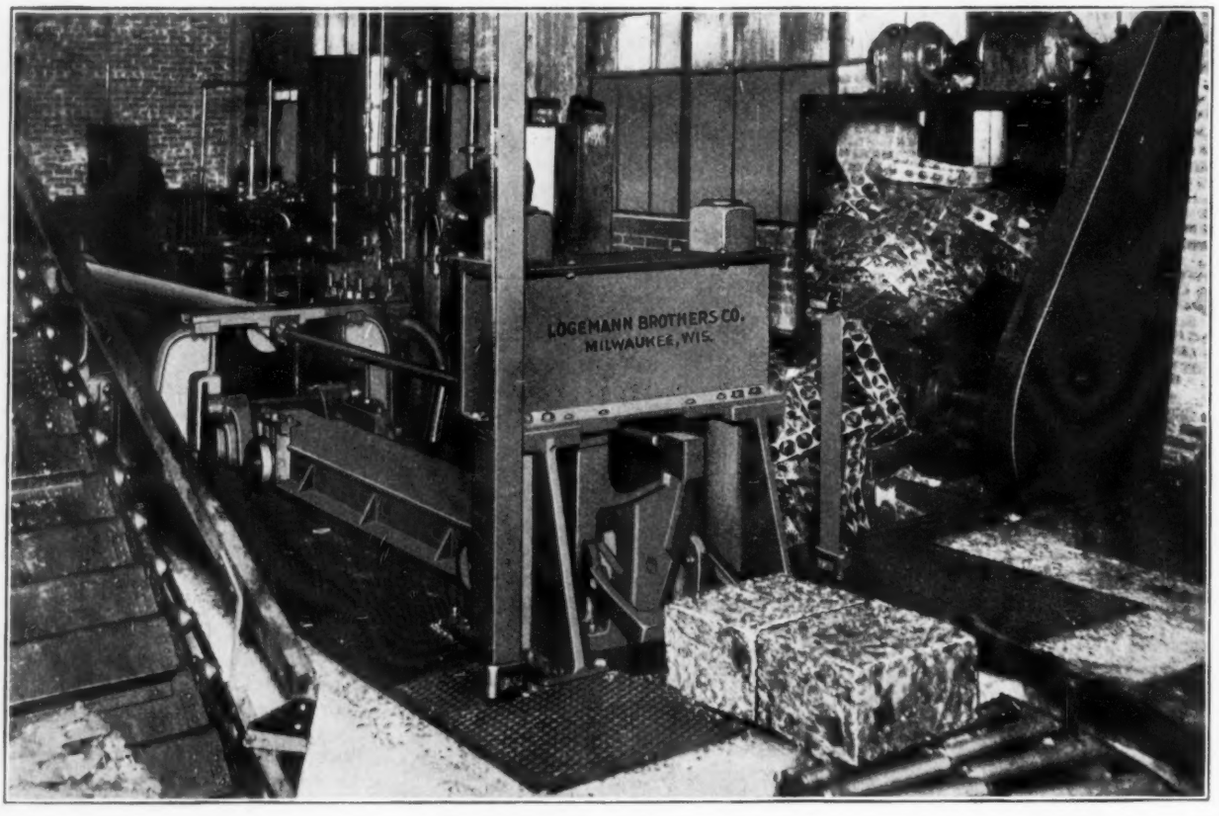
Write Us Your Problems

Hydraulically-compressed scrap commands at all times the best price - - can be more economically handled - - can be readily held for favorable markets.

Baling practically eliminates corrosion - - saves much heat in remelting - - permits easy loading of scrap cars to capacity.

The installation below is in a plant making automotive electrical equipment. Scrap comes to the baling room over the horizontal conveyor at the right, is caught by the hopper, while press is finishing a bundle, then automatically charged into press. Press cover shoves the finished bundles to the rollers carrying them to the inclined apron - conveyor at the left, this discharges directly into gondola - car outside.

Our Engineering Department, with years of experience on installations of all kinds, is at the service of interested scrap - producers. Write us.



LOGEMANN BROTHERS COMPANY

3126 W. BURLEIGH STREET — MILWAUKEE, WISCONSIN

BRANCH OFFICES IN ALL PRINCIPAL CITIES

Scrap

Prices Continue to Sag Under Large Offerings and Refusal of Melters to Take Tonnage

Chicago—Heavy melting steel now is being quoted at a top of $6.50, two 25-cent reductions having been made effective this month. Recent attempts to muster resistance have failed and dealers are able to obtain steelmaking grades for their long positions at as low as $6.25. Illinois Central withdrew 2000 tons of scrap from the market in addition to the withdrawal of about 3000 tons by the Burlington a week ago, because of low bidding from dealers. Shipping orders from steelmaking melters have failed to strengthen despite the fact that steelworks operations in the district have been a shade higher in the last week. Activity in cast borings is easing, although another boat shipment eastward is scheduled for the latter part of the

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	6.50 to 7.00
Boston, dealers	3.75 to 4.00
Buffalo, No. 1	7.00 to 7.50
Buffalo, No. 2	5.50 to 6.00
Chicago	6.25 to 6.50
Cleve., No. 1	6.75 to 7.00
Cleve., No. 2	6.50 to 6.75
Det., No. 1 deal.	5.00 to 5.50
Det., No. 2 deal.	3.00 to 3.50
E. Pa. del. mill	6.00 to 7.00
N. Y. deal, R. R.	4.50 to 5.00
N. Y. deal, No. 2	2.00 to 2.50
N. Y. deal. yd.	2.50 to 3.00
Pitts. No. 1	9.50 to 10.00
St. L. No. 1 sel.	6.75 to 7.25
Federal, Ill.	6.50 to 7.00
Granite City, Ill.	6.00 to 6.50
Valleys, No. 1	9.50 to 10.00

COMPRESSED SHEETS

Buffalo, dealers	5.50 to 6.00
Chi. (Factory)	5.50 to 5.75
Cleveland	6.75 to 7.00
Detroit, dealers	5.00 to 5.50
E. Pa. new mat.	5.00 to 5.50
Pittsburgh	9.25 to 9.75
Valleys	9.25 to 9.75

BUNDLED SHEETS

Buffalo	4.50 to 5.00
Cinci., deal.	5.50 to 6.00
Cleveland	6.00 to 6.50
Eastern, Pa.	5.00
Pittsburgh	8.00 to 8.50
St. Louis	1.50 to 2.00

SHEET CLIPPINGS LOOSE

Chicago	3.50 to 4.00
Cincinnati	3.00 to 3.50
Detroit, dealers	2.50 to 3.00
St. Louis	1.50 to 2.00

STEEL RAILS SHORT

Birmingham	11.00 to 11.50
Boston, dealers	4.25 to 4.75
Buffalo	10.00 to 10.50
Chicago (3 ft.)	8.75 to 9.25
Chicago (2 ft.)	9.00 to 9.50
Cinci., deal.	10.00 to 10.50
Detroit, deal.	8.00 to 9.00
Pitts. (open-hearth, 3 ft. and less)	11.00 to 11.50
St. Louis	11.00 to 11.50

STOVE PLATE

Birmingham	6.00 to 6.50
Boston, con.	4.50 to 5.00
Buffalo	7.50 to 8.00
Chicago, net	5.25 to 5.75
Cinci., deal. net	3.75 to 4.25
Det., net deal.	2.50 to 3.00
Eastern, Pa.	6.50
N. Y., deal. mill	2.50 to 3.00
St. Louis	6.00 to 6.50

COUPLERS, SPRINGS

Buffalo	9.50 to 10.00
Chicago	7.50 to 8.00
Eastern Pa.	7.50 to 8.00
Pittsburgh	10.00 to 10.75
St. Louis	8.00 to 8.50

ANGLE BARS—STEEL

Chicago	7.50 to 8.00
St. Louis	7.00 to 7.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	9.00 to 9.50
Cleveland bil. and bloom crops	9.00 to 10.00
Eastern Pa.	9.00 to 10.00
Pittsburgh billet bloom crops	13.00 to 13.50
Pitts., sheet bar crops	11.50 to 12.00

FROGS, SWITCHES

Chicago	6.50 to 7.00
St. Louis	7.00 to 7.50

SHOVELING STEEL

Chicago	6.25 to 6.50
Cleveland	6.25 to 6.50
St. Louis	6.50 to 7.00

RAILROAD WROUGHT

Birmingham	6.00 to 7.00
Boston, dealers	6.50 to 7.00
Buffalo, No. 1	4.50 to 5.00
Buffalo, No. 2	7.00 to 7.50
Chicago, No. 1	5.25 to 5.90
Chicago, No. 2	6.25 to 6.50
Cinci., No. 2	6.50 to 7.00
Eastern, Pa.	7.50 to 8.00
N. Y., No. 1, deal.	5.00 to 5.50
Pitts., No. 2	9.50 to 10.00
St. Louis, No. 1	4.50 to 5.00
St. Louis, No. 2	6.50 to 7.00

SPECIFICATION PIPE

Boston	4.00 to 4.25
Eastern Pa.	8.00 to 8.50
N. Y., deal	5.00 to 5.50

BUSHELING

Buffalo, No. 1	5.50 to 6.00
Chicago, No. 1	5.00 to 5.50
Cinn., No. 1 dl.	4.50 to 5.00
Cinn., No. 2	3.00 to 3.50
Cleve., No. 2	4.00 to 4.25
Det., No. 1 new deal.	4.00 to 4.50
St. L., No. 1	3.50 to 4.00
Val. new No. 1	8.75 to 9.25

MACHINE TURNINGS

Birmingham	3.50 to 4.00
Boston, dealers	1.05 to 1.55
Buffalo	4.50 to 5.00
Chicago	3.50 to 4.00
Cin., deal	3.25 to 3.75
Cleveland	3.50 to 4.00
Detroit	2.25 to 2.75
Eastern, Pa.	3.50 to 4.00
N. Y., deal	1.35 to 1.50
Pittsburgh	6.50 to 7.00
St. Louis	1.50 to 2.00
Valleys	7.00 to 7.50

BORINGS AND TURNINGS
For Blast Furnace Use

Boston, dealers	.60 to .75
Buffalo	5.50 to 6.00
Cinn., deal.	3.25 to 3.75
Cleveland	4.00 to 4.50
Detroit, deal.	3.25 to 3.75
Eastern Pa.	3.00 to 3.50
N. Y., deal	1.35 to 1.50
Pittsburgh	6.50 to 7.00

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	3.50 to 4.00
Boston, chem.	5.50 to 6.50
Boston, dealers	1.00 to 1.25
Buffalo	5.50 to 6.00
Chicago	3.75 to 4.00
Cinn., deal.	3.25 to 3.75
Cleveland	4.00 to 4.50
Detroit, deal.	3.25 to 3.75
Eastern Pa.	3.00 to 3.50
E. Pa., chem.	10.00 to 11.00
N. Y., deal.	1.50 to 2.00
Pittsburgh	6.50 to 7.00
St. Louis	4.00 to 4.50

PIPE AND FLUES

Cinn., deal.	4.00 to 4.50

RAILROAD GRATE BARS

Buffalo	4.75 to 5.25
Chicago, net	5.00 to 5.50
Cincinnati	4.25 to 4.75
Eastern Pa.	6.50
N. Y., deal.	4.00 to 4.50
St. Louis	5.25 to 5.75

FORGE FLASHINGS

Boston, dealers	3.00 to 3.50
Buffalo	4.50 to 5.00
Cleve. ov. 10 in.	7.00 to 7.50
Detroit	3.50 to 4.00

FORGE SCRAP

Boston, dealers	2.00 to 2.25
Chicago	9.00 to 9.50
Eastern Pa., del.	5.50 to 6.00

ARCH BARS, TRANSOMS

Chicago, net	6.00 to 6.50
St. Louis	6.50 to 7.00

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	6.50 to 7.00
Chi., steelworks	5.50 to 6.00
Cleveland	6.50 to 6.75
Eastern Pa., del.	6.00 to 6.50
Pittsburgh, O. H.	7.50 to 8.00
St. Louis	5.00 to 5.50

STEEL CAR AXLES

Birmingham	10.50 to 11.00
Boston, ship. pt.	8.50 to 9.00
Buffalo	10.00 to 10.50
Chicago	10.65 to 11.20
Eastern Pa.	14.50 to 15.00
St. Louis	10.50 to 11.00

SHAFTING

Boston, ship. pt.	8.50 to 9.00
Chicago	6.75 to 7.30
N. Y., deal.	9.00 to 9.50
St. Louis	8.50 to 9.00
E. Penna.	13.00 to 14.00

CAR WHEELS

Birming. iron	8.00 to 8.50
Boston, iron	10.00 to 11.00
Buffalo, iron	8.00 to 8.50
Buffalo, steel	8.50 to 9.00
Chicago, iron	6.50 to 7.00
Chi., rolled steel	7.00 to 7.50
Cincinnati iron	8.00 to 8.50
E. Pa. steel	7.50 to 8.00
E. Pa. iron	9.50 to 10.00
Pitts. iron	9.50 to 10.00
Pitts., steel	10.00 to 10.50
St. Louis, iron	6.00 to 6.50
St. Louis, steel	6.50 to 7.00

NO. 1 CAST SCRAP

Birmingham	7.00 to 8.00
Buffalo (Mach.)	9.50 to 10.00
Buffalo, cupola	8.50 to 9.00
Boston, textile	7.50 to 8.00
Chicago, mach.	7.30 to 7.85
Chi., railroad	6.45 to 7.00
Chicago, agri.	6.15 to 6.75
Cinn., mach. cup.	8.00 to 8.50
Cleve. cupola	7.00 to 7.50
Det., net deal.	7.00 to 7.50
E. Pa. cupola	9.50 to 10.00
N. Y. cup. deal.	6.50 to 7.00
N. Y., del. local foundries	11.00
Pitts., cupola	9.00 to 9.50
San Fran., del.	13.50 to 14.00
Seattle	5.00 to 7.50
St. L. No. 1 ma.	7.00 to 7.50
St. L., No. 1	6.50 to 7.00

HEAVY CAST

Boston, del.	3.50 to 4.00
Bost., mach. cast	7.50 to 8.00
Buffalo, break.	6.00 to 6.50
Cleve., break	3.50 to 4.00
Detroit, auto, net deal.	9.00 to 9.50
Det., break., dl.	4.00 to 4.50
Eastern Pa.	8.00 to 8.50
N. Y. No. 1 dl.	4.00 to 4.50
N. Y. break, dl.	4.50 to 4.75
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston R. R.	8.00 to 8.50
Buffalo	8.00 to 8.50
Chicago, agri.	6.00 to 6.50
Chicago, R. R.	6.50 to 7.00
Cinci., R. R. del.	8.00 to 8.50
Cinci., agri. del.	7.75 to 8.25
Cleveland, rail	7.50 to 8.00
Det. auto deal.	7.00 to 8.00
St. Louis, rail	5.50 to 6.00

RAILS FOR ROLLING
5 feet and over

Birmingham	9.00 to 9.50
Boston, deal.	5.50 to 6.00
Buffalo	8.00 to 8.50
Chicago	8.50 to 9.00
Eastern Pa.	9.50
New York	5.25 to 5.75
St. Louis	9.00 to 9.50

LOCOMOTIVE TIRES

Chicago, cut	8.00 to 8.50
St. L., No. 1	8.00 to 8.50

LOW PHOS. PUNCHINGS

Chicago	9.00 to 9.50
Buffalo	9.00 to 9.50
Eastern Pa.	9.50 to 10.00
Pittsburgh	10.50 to 11.00

month. This cargo is expected to clean out the accumulated borings in this district and on the docks. Hydraulic compressed bundles now are entirely without a market.

Boston—Scrap buying has dropped to a low ebb and prices on several grades are nominal and untested. No. 1 melting steel has sold at $5.50, delivered, Central Massachusetts, although little has moved at any price.

New York—Scrap buying on most grades is at a standstill. For barge No. 1 melting steel has moved as low as $4.50, and even at that low figure, volume is light. Other grades are nominal, there being no demand. Most consumers are holding back shipments or taking small lots. Stove plate is weak with the Bayonne buyer still out of the market.

Philadelphia—Demand for steel and iron scrap is at a virtual standstill as melters take no tonnage. Prices are largely nominal and unchanged.

Buffalo—Reports are current here that a fair sized tonnage of stove plate has been sold within the range of $7.25 to $7.50. Other material is without activity, however, and nominal prices prevail.

Pittsburgh—Some buying of heavy melting steel has been done recently but tonnage involved has been extremely small. The price paid was around $10, which now represents the top of the market on this grade. Hydraulic compressed sheets continue $9.25 to $9.75, with buying also quiet. Activity in other grades is as quiet as formerly and prices are nominally weaker.

Cleveland—While some inquiry has been put out on foundry grades of cast scrap the general trade continues inactive. Especially is this true of heavier steel grades, borings and turnings. Some weakness in the Youngstown scrap market now has developed into a reduction of 25 to 50 cents.

Detroit — Offerings of scrap are somewhat smaller. The production of Chevrolet and Chrysler is steady, but most other manufacturers, including body interests, are issuing smaller lists. Ford scrap is not now a factor in the open market. The water movement away from Detroit is light. Some distress lots have brought prices lower than those quoted, but the market level as a whole is unchanged.

Cincinnati—Conditions in scrap iron and steel are unchanged, with virtually no buying and light shipments on old contracts. Louisville & Nashville railroad is taking bids on 19,000 tons of scrap, including 8800 tons of rails, 1000 tons of wrought iron and 1200 tons of wheels. This is almost three times what would be considered now a normal tonnage.

Birmingham, Ala.—Little buying is being done, even melters of heavy melting steel having eased off from their small purchasing. Prices are unchanged.

Toronto, Ont.—Demand is slow in iron and steel scrap. Sales are in small tonnage, with demand specialized.

St. Louis—Apathy and an easier trend in prices continue in iron and steel scrap. Recent offerings of heavy melting steel have been at the lowest levels on the present downward movement. Despite the bargain figures, mills have shown no interest, and practically nothing has changed hands.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26

Per Pound at Producers' Plants in 250-Pound Drums

Phenol	0.153 to 0.173

Per Pound at Producers' Plants in

Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75

Per 100 Pounds Atlantic Seaboard

Sulphate of ammonia	$1.10 to 1.20

Ferroalloy Requirements Moderately Better

Ferroalloy Prices, Page 54

New York—Sales of ferroalloys are quiet and spotty, with some grades slightly better than others. A small pickup in business was reported a week ago, and while this light improvement has continued with some sellers, others state that the earlier quiet tone has been resumed. Prices are unchanged.

Pittsburgh—Spot orders for ferroalloys are few. Shipments of ferromanganese and spiegeleisen reflect the continued quietness in steelmaking operations and lack improvement over the April rate. Ferromanganese remains at $75, spiegeleisen at $27.

Bolt, Nut, Rivet Market Lagging Behind April

Bolts, Nuts, Rivets Prices, Page 47

Chicago — Occasional automobile orders stimulate the bolt and nut market, but shipping orders are behind April. Carriage and machine bolts are quoted at 75 off.

Coke

Beehive Premium Foundry Reduced 25 cents—Markets Are Quiet — Southern Output Down

COKE PRICES, PAGE 54

Pittsburgh — Prices of premium grades of beehive foundry coke have been reduced 25 cents a ton to $4.25. Lower quality material continues $3.25. Business is quiet and unchanged. Furnace coke is nominal at $2.25 with demand confined to occasional spot orders, little change being noted in total business.

Boston—Curtailed foundry operations continue to restrict demand for by-product coke. Lower discharging rates on coke at Boston have been docketed by the New England Freight association.

New York—Specifications for metallurgical coke continue to drag, with prices unchanged. Beehive furnace coke is $2 to $2.50, Connellsville, and beehive foundry $3 to $3.25, Connellsville, for standard grades, and $4 to $4.50, Latrobe, Pa., for premium brands. By-product foundry is $8.21 to $8.81, delivered Newark, N. J., $10, New England; and $8.50, Philadelphia.

Cincinnati—Shipments of by-product foundry coke have receded to a new low point. Prices are steady.

St. Louis—Foundries are ordering coke in accordance with their reduced rate of operations. Deliveries so far this month are below the April average. Despite efforts to hold down production, stocks at by-product plants are gaining considerably. Prices are unchanged.

Birmingham, Ala.—New business is scarce, and production is below 40 per cent. Gas contracts with city and manufacturing interests require operation of two of the by-product coke works. A small amount of coke still is being shipped from the district.

Pacific Coast

Better Awards and Inquiries Appear in California, While Pipe Is Best Market in Northwest—Bridge and Tunnel Needs Give Promise of Better Tonnage as Season Advances

San Francisco—(*By Air Mail*)—Some improvement in demand is noted in the iron and steel markets on the Pacific Coast and several large awards have been made. In addition a number of new projects have come up for figures or are about to be released. Lettings included 1000 tons of reinforcing bars for the Times building, Los Angeles, booked by an unnamed interest and 588 tons of structural shapes for a water front project at Stockton, Calif., secured by the Pacific Coast Engineering Co.

Concrete bar awards aggregated 2744 tons, the largest weekly total so far this year. Among the larger lots awarded were 500 tons for a water front project at Stockton, Calif., booked by the Concrete Engineering Co., and 463 tons for a grandstand for the Los Angeles county fair grounds at Pomona, Calif., secured by the Blue Diamond Co. Bids will be opened on June 6 for 725 tons for tunnel structures for the Hetch Hetchy project, San Francisco.

Among plate inquiries is 900 tons for a gas holder for the Southern Counties Gas Co., San Diego, Calif. Bids will be called for soon for 1500 tons for a 62-inch welded steel pipe line and a 72-inch siphon for the Hetch Hetchy project, San Francisco.

Among structural shape awards placed were 441 tons for bridges for the Southern Pacific Co., San Francisco, taken by the Virginia Bridge & Iron Co., and 400 tons for a city hall at Van Nuys, Calif., booked by McClintic-Marshall Corp. The Six Companies, Boulder City, Nev., will shortly be in the market for 2000 to 3000 tons for cableways and 1000 tons of steel sheet piling. Bids have been opened on 721 tons for the H street bridge over the American river at Sacramento, Calif. Vernon, Calif. will open bids May 23 for 400 tons for a power house.

Most Activity in Pipe

Seattle—Building construction in the Pacific Northwest continues inactive. Oregon will open bids May 18 for 17 highway projects, involving very little steel, approximating an expenditure of $1,000,000.

In keen competition with foreign representatives, R. D. Wood & Co., Philadelphia, booked 100 tons of 12-inch centrifugal pipe for a Tacoma, Wash., project. The same supplier also booked about 100 tons of 6-inch centrifugal pipe for Fort Lewis. Colfax, Wash., is reported to have awarded 200 tons of 6 and 8-inch to Universal Pipe Co., while Kittitas, Wash., has purchased 125 tons of 4 and 6-inch second hand steel pipe from Pacific Waterworks Supply Co., Seattle.

Steel in Europe

Markets Gain in Britain but Tariff Hurts Continent

London—(*By Cable*)—Improvement is noted in the market at Middlesbrough, although it is slow and gradual. Stocks of steel are heavy, largely Continental material imported in anticipation of the tariff imposition. Demand for pig iron is expanding steadily. Conditions at Birmingham are dull. Galvanized sheet prices are higher but orders are scarce. Tin plate demand is dull. Inquiries for steel for export are expanding slowly.

Production in April was slightly below that of March, though the change is small. Pig iron production in April was 316,900 tons from 69 stacks, a daily average of 10,563 tons, compared with 335,600 tons from 72 stacks, daily average 10,826 tons, in March. Steel production in April was 433,300 tons, a daily average of 14,443 tons, compared with 462,800 tons, daily average 14,929 tons, in March.

Reports from the Continent are that the position is dominated by the British tariff and Belgium is particularly hard hit. The German export market is more active.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, May 12

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	
		£ s d		£ s d
PIG IRON				
Foundry, 2.50-3.00 Silicon	$10.58	2 17 6	$ 9.72 to $10.21	2 0 0 to 2 2 0
Basic bessemer	10.30	2 16 0*	9.23	1 18 0
Hematite, Phos. .03-.05	11.78	3 4 0	.....	.....
SEMIFINISHED STEEL				
Billets	$19.78	5 7 6	$18.33	2 2 6
Wire rods, No. 5 gage	27.60	7 10 0	21.87	4 10 0
FINISHED STEEL				
Standard rails	$30.36	8 5 0	$28.55	5 17 6
Merchant bars	1.05c	6 7 6	.48c to .50c	2 4 0 to 2 5 0
Structural shapes	1.21c	7 7 6	.47c to .48c	2 3 0 to 2 4 0
Plates, †¼ in. or 5 mm	1.44c	8 15 0	.59c to .61c	2 14 0 to 2 15 0
Sheets, black, 24 gage or 0.5 mm.	1.31c	8 0 0	1.20c to 1.21c	5 9 0 to 5 10 0
Sheets, gal., 24 gage, corr.	1.58c	9 12 6	1.51c	6 17 6
Bands and strips	1.35c	8 5 0	.72c to .74c	3 5 0 to 3 7 6
Plain wire, base	1.39c	8 10 0	1.18c	5 7 6
Galvanized wire, base	2.03c	12 7 6	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.80c	11 0 0	1.21c	5 10 0
Tin plate, box 108 lbs.	$ 2.76	0 15 0	$3.20	0 13 2

British ferromanganese $72 to $75 delivered Atlantic seaboard, duty paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks	
Fdy. pig iron, Si. 2.5	$10.58	2 17 6	$ 9.48	240(2)	$ 9.13	325	$16.48	69
Basic bessemer pig iron	10.30	2 16 0*	7.90	200(1)	8.29	295	18.03	75.50
Furnace coke	2.44	0 13 3	4.90	124	4.50	160	5.11	21.40
Billets	19.78	5 7 6	14.62	370	10.82	385	23.76	99.50
Standard rails	1.44c	8 15 0	1.41c	785	1.57c	1,210	1.37c	127
Merchant bars	1.15c	7 0 0	.90c	500	.56c	430	1.24c	115
Structural shapes	1.44c	8 15 0	.99c	550	.56c	430	1.22c	112.50
Plates, †¼-in. or 5 mm	1.48c	9 0 0	1.17c	650	.71c	545	1.43c	132.50
Sheets, black	1.44c	8 15 0§	1.35c	750‡	.88c	675‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	1.52c	9 5 0	2.70c	1,500	1.95c	1,500	3.40c	370
Plain wire	1.39c	8 10 0	1.75c	970	1.95c	1,500	1.92c	178
Bands and strips	1.56c	9 10 0	.90c	500	.88c	675	1.44c	133

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basis price.
British quotations are for basic open-hearth steel, Continental usually for basic-bessemer steel.

Machinery

NEW business in machinery and equipment continues to be scarce despite the fact that inquiry holds fairly steady. Navy department is holding up award of a lathe contract because of some specification changes made recently. Further Russian business is being placed as a part of the sizeable program recently announced by Amtorg Trading Corp. in New York. Dealers in the Chicago district foresee no definite improvement in their business before August, and are being sustained chiefly by parts orders and maintenance work. A Milwaukee interest is completing installation of new heat treating equipment.

New York—Demand for plant equipment and tools still drags. Buying is confined largely to a scattering of individual tools. Inquiry is light. Some business still is being placed for Russia. The navy department is readvertising a list of tools, including lathes, on which bids were closed some weeks ago, having revised lathe specifications.

Worcester, Mass. — Detail involving the 12 lathes for which the navy department has opened bids is holding up award of the contract. Some decision is expected within a week although the tremendous press of competition may make further indecision necessary. New prospects are scarce. Sales expeditions report successful contacts with production men but executives continue to withhold orders.

Pittsburgh — Inquiry for machine tools and equipment holds fairly steady. Orders are slow to develop, however, and prospective buyers continue to defer action on pending work. Volume of new business has changed but slightly over recent weeks and general activity lacks a definite trend.

Cleveland—Signs of slow improvement in buying of machinery and equipment are noticed, although the market still is sharply depressed. Most purchases are for single units and are spread among a wide list of small buyers, with no one line evincing any unusual activity. Second quarter business with one interest is registering a slight gain over the first quarter, but little definite improvement is expected before fall. Sentiment in general continues unfavorable.

Chicago—Sustained chiefly by parts and repair orders, plant equipment and machine tool sales offices are girded for at least another two months of existing conditions before a definite turn may be discernible. Machine tool houses have sold only small tools and repair parts this month and in April. Resale equipment that is being offered at a plant in this district is moving fairly well. Used tool inquiries are holding up. A Milwaukee district manufacturer is completing installation of additional heat treating equipment for production of an alloy metal. No recent business of consequence has been closed in pickling equipment. A few light crane orders were placed a month ago, but no business is in sight now.

Northwestern Iron Workers' Wages Reduced

Seattle—A new scale has been adopted by employers and workmen, with reductions approximately 20 per cent, conforming to the current rates in other Pacific coast cities. For an 8-hour day the new wage for structural workers is $8.80; ornamental iron workers, $8; rod men, $7.20; and sheet metal workers, $8.

United States court of customs and patents appeals has upheld the right of the President to change the rate of tariff duty under the flexible provisions of the law.

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 6.25c, Conn., for copper

Sheets	
Yellow brass (high)	12.50
Copper, hot rolled	15.37½
Lead sheets, cut, to jobbers	6.50
Zinc sheet (100-lb. base)	9.00
Tubes and Pipes	
Seamless yellow brass (high)	15.75
Seamless copper	14.87½
Rods	
Yellow brass (high, full turnings)	10.25
Naval brass	11.37½
Anodes	
Copper untrimmed	12.25
Wire	
Yellow brass (high)	12.50

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	3.00 to 3.25
Chicago	2.00 to 2.25
Cleveland	2.50 to 3.00
St. Louis	2.75
Heavy Yellow Brass	
New York	2.00 to 2.25
Heavy Copper and Wire	
New York	4.00 to 4.25
Boston	4.50 to 4.75
Chicago	2.75 to 3.00
Cleveland	2.75 to 3.25
St. Louis	3.00
Composition Brass Borings	
New York	2.75 to 3.00
Yellow Brass Tubing	
Cleveland	1.50 to 2.00
Light Copper	
New York	3.25
Chicago	2.25 to 2.50
Cleveland	2.25 to 2.75
St. Louis	2.75
Light Brass	
Boston	1.65 to 1.85
Chicago	1.25 to 1.37½
Cleveland	1.00 to 1.50
St. Louis	1.50
Lead	
St. Louis	2.00
Zinc	
New York	1.00
Cleveland	0.87½ to 1.00
St. Louis	1.00
Aluminum	
Clippings, new, soft, Cleve.	10.50 to 11.00
Clippings, hard, Cleveland	7.00 to 8.00
Borings, Cleveland	2.75 to 3.25
Mixed cast, Cleveland	3.75 to 4.25
Mixed cast, Boston	3.25 to 3.50
Mixed cast, St. Louis	3.00 to 3.50

Secondary Metals

Remelt, aluminum No. 12	8.00 to 9.00
Brass ingots, 85-5-5-5	6.00

Nonferrous Metal Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
May 7	5.62½	6.12½	5.37½	22.00	22.40	3.00	2.90	2.50	22.90	5.25	35.00
May 9	5.62½	6.12½	5.37½	21.12½	21.55	3.00	2.90	2.50	22.90	5.25	35.00
May 10	5.62½	6.12½	5.37½	20.62½	21.05	3.00	2.90	2.50	22.90	5.20	35.00
May 11	5.50	6.12½	5.25	21.37½	21.80	3.00	2.90	2.40	22.90	5.20	35.00
May 12	5.50	6.12½	5.25	20.70	21.10	3.00	2.90	2.37½	22.90	5.20	35.00
May 13	5.50	6.12½	5.25	20.40	20.80	3.00	2.90	2.37½	22.90	5.20	35.00

American QUALITY Steel & Wire Company

COLD HEADING WIRE

RESULTS You Know Beforehand

Needless to say, your product can be no better than the material from which it is fabricated. The complete control exercised by this Company over every step in the production of Cold Heading Wire in carbon steels and alloys is your assurance of complete satisfaction.

By this same control, we are better able to give your individual requirements the attention you expect. Specify "American Quality" on your next order—and KNOW results beforehand.

1831 — MORE THAN 100 YEARS of PROGRESS in WIRE MAKING — 1932

AMERICAN STEEL & WIRE COMPANY

208 South La Salle Street, Chicago

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

And All Principal Cities

Pacific Coast Distributors. Columbia Steel Company, Russ Building, San Francisco

Export Distributors: United States Steel Products Company, New York

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
⅛	58	44½	⅛	25	7
¼	62	50½	¾	30	13
1—3	64	52½	1—1¼	33	17
			1½—2	37	20

LAP WELD

2	57	45½	2	25	11
2½—6	61	49½	2½—3½	..30	15
7—8	58	45½	4—6	32	19
9—10	56	43½	7—8	31	18
11—12	55	42½	9—12	28	13

BUTT WELD

Extra strong, plain ends

⅛	55	44½	¼ & ⅜	..+11	+46
¼	60	49½	½	25	9
1—1½	62	51½	¾	30	14
2—3	63	52½	1—2	36	20

LAP WELD

Extra strong, plain ends

2	55	44½	2	31	15
2½—4	59	48½	2½—4	36	22
4½—6	58	47½	4½—6	35	21
7—8	54	41½	7—8	33	19
9—10	47	34½	9—12	23	10
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6.....	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6.....	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$32.00 to 33.00
Four-inch, Birmingham .... 36.00 to 37.00
Four-inch, Chicago ..... 38.40 to 42.40
Six to 24-inch, Chicago..... 34.40 to 38.40
Six-inch and over, N. Y..... 28.00 to 30.00
Four-inch, New York ..... 34.50 to 36.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	3.00c
Chattanooga..	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.65c
Los. Ang.	2.35c
New York‡(d)	3.10c
Philadelphia..	2.45c
Pittsburgh	2.60c
Portland	2.75c
San Fran.	2.35c
Seattle	2.75c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	3.15c
Chattanooga..	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia..	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore 2.35c-	3.00c
Boston	3.25c
Buffalo	2.95c
Chattanooga..	3.00c
Cincinnati	3.00c
Cleveland 2.10-	2.25c
Detroit	2.85c
Houston	3.00c
Los. Ang. cl...	1.90c
Los Ang., lcl	2.20c
New York....2.65c-	3.10c
Phila.	2.26½c
Pittsburgh	2.60c
San Fran. cl.	2.60c
San Fran. lcl	2.80c
Seattle	3.00c
St Louis	3.15c
Tulsa	3.25c
Young. 2.30c-	2.60c

SHAPES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.25c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los. Ang.	2.35c
New York(d)	3.10c
Philadelphia..	2.45c
Pittsburgh	2.85c
Portland	2.75c
San Fran.	2.35c
Seattle	2.75c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.25c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles..	2.35c
New York(d)	3.30c
Philadelphia..	2.45c
Phila. floor....	5.10c
Pittsburgh	2.85c
Portland	2.75c
San Fran.	2.35c
Seattle	2.75c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.50c
Buffalo	3.50c
Chattanooga..	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.35c
Los Ang.	3.50c
N. Y.	3.00c
Portland	3.75c
Phila.*† (e)....	2.90c
Pitts.**	3.00c
San Fran.	3.50c
Seattle	3.75c
St. Louis	3.45c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.20c
Buffalo	4.10c
Chattanooga..	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.05c
New York ..3.75c-	4.00c
Phila.*†(e) ..	3.40c
Pitts.**	3.40c
Portland	4.25c
San Fran.	3.95c
Seattle	4.25c
St. Louis	3.80c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	4.75c
Buffalo	4.35c
Chattanooga..	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	3.75c
Detroit	4.00c
Houston	4.25c
Los. Ang.	4.35c
New York....4.00c-	4.10c
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	4.75c
San Fran.	4.35c
Seattle	4.75c
St. Louis	4.35c
St. Paul	4.19c
Tulsa	5.10c

BANDS

Baltimore	3.25c
Boston	3.75c
Buffalo	3.35c
Chattanooga..	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter....	3.15c
Houston	3.65c
Los Ang.	4.30c
New York(d)	3.40c
Philadelphia..	2.75c
Pittsburgh	2.95c
Portland	3.25c
San Fran.	3.75c
Seattle	3.25c
St. Paul	3.20c
Tulsa	3.45c

HOOPS

Baltimore	3.25c
Boston 4.90c-	5.40c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter	3.65c
New York	3.75c
Philadelphia..	3.00c
Pittsburgh	3.60c
Seattle	4.75c
St. Paul	3.75c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.75c
Chicago	3.10c
Cincinnati	3.50c
Cleveland	3.10c
Detroit	3.40c
Los Ang. (a)	4.50c
New York	3.30c
Philadelphia*	3.30c
Pittsburgh	3.10c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)....	4.50c
St. Paul (a)..	3.50c
St. Louis	3.35c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.25c
Chicago (soft) (b)..	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c).....	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.

(c) Plus mill, size and quantity extras.

(d) Minus quant. diff.

(e) New mill classif.

‡ Domestic bars.

* Plus quan. extras.

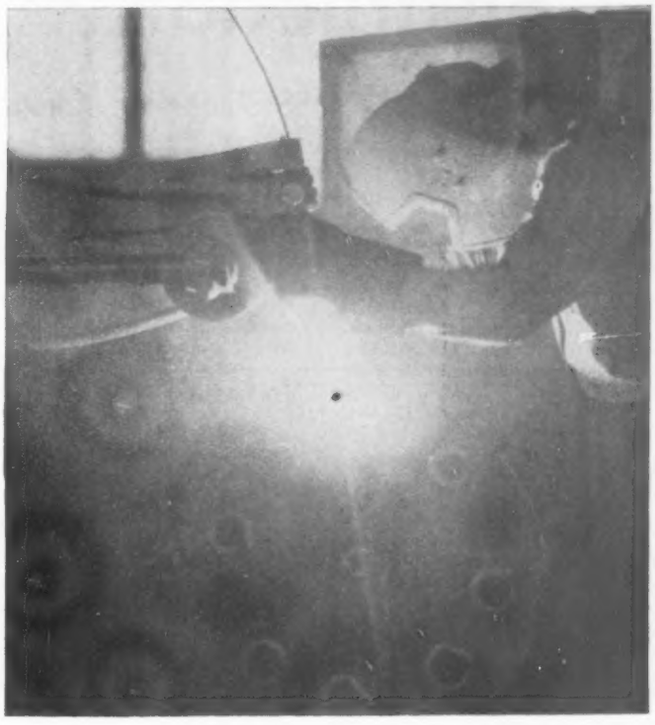
** Less than 25 sheets.

*† 50 or more bundles.

Welding

Whether arc, spot, butt, seam, projection or flash welding is employed, Youngstown sheets weld easily and insure a clean, strong joint.

At the right is pictured an arc welding operation in the manufacture of one of the thousands of products in which the welding qualities of Youngstown steel sheets are being constantly demonstrated.



YOUNGSTOWN SHEETS

Describe in detail the qualities you need in a sheet and you will find that Youngstown can match them with surprising accuracy.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

General Offices: YOUNGSTOWN, OHIO

One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"

YOUNGSTOWN

SHEETS FOR EVERY PURPOSE .. INCLUDING YOURS

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

CAMBRIDGE, MASS.—George H. Priggen Co., manufacturer of ventilating systems and similar products, is moving from 375 Broadway, Boston, to 7 Carleton street, Cambridge, where it will occupy an entire building with 10,000 square feet of space. George H. Priggen is president and Joseph N. Leonard treasurer.

New York

BROOKLYN—Todd Dry Dock Engineering & Repair Co., Twenty-third street, will make improvements and additions to its plant, to cost $40,000.

NEW YORK — Dry Dock Copper Works has been incorporated with $10,000 capital to manufacture utensils, by I. Feilerman, 274 Madison avenue.

New Jersey

IRVINGTON—Thomas J. Lee Inc., 495 Lyons avenue, manufacturer of plumbing supplies, has plans for a 2-story plant 50x200 feet, to cost $50,000, to be built late this year. N. J. Convery, 32 Walnut street, Newark, N. J., is architect.

Pennsylvania

BEAVER FALLS — Enterprise Machine Shop, Eighth avenue and Seventh street, will build a 1-story machine shop, 40x90 feet.

GROVE CITY — Wendell August Forge Co., E. J. Fithian president, will build an aluminum forging plant, to cost $40,000.

WILLIAMSPORT—Lind Mfg. Co. has been incorporated with $15,000 capital to manufacture metal specialties, by Jacob C. Brown, Williamsport.

Ohio

OBERLIN—Oberlin college, T. M. Crutsinger superintendent of construction, will ask bids soon on a heating plant to cost about $325,000, brick, 60x80 feet, with three 400-horsepower boilers.

Michigan

DETROIT — Schlafer Iron & Metal Co. has been incorporated with $75,000 capital to deal in steel and other metals, by Maurice A. Schlafer, 11030 Harper avenue, Detroit, and associates.

DETROIT—Acme Ball Bearing & Mfg. Co. has been incorporated with $20,000 capital and 6000 shares no par value to manufacture ball bearings and other metal products, by Theodore J. Freund, 12245 Turner avenue, and associates.

MUSKEGON — J. B. Rose, Detroit, has been awarded a contract by the Kohler Aviation Corp., Grand Rapids and Detroit, for a seaplane hangar at Muskegon.

Indiana

INDIANAPOLIS—American Metalcraft Inc. has been incorporated with 12,500 shares no par value to manufacture metal specialties, by H. R. DeWolf, A. J. Gibbons and W. G. Himmel.

INDIANAPOLIS — Bright Inc. has been incorporated with 20,000 shares no par value to manufacture machinery, by Martin C. Bright and associates.

MARION — Fresh Flo Pump & Mfg. Co. has been incorporated with 1500 shares no par value to manufacture pumps, by Frank H. Lanksenkamp and associates.

Illinois

CHICAGO—McIntyre & Brotman Mfg. Co., 2939 Clybourn avenue, has been incorporated with $20,000 capital to manufacture electrical appliances, by J. P. McIntyre and associates.

Missouri

KANSAS CITY—Kansas City Trailer Co. has been formed to manufacture wood and steel trailers for camping purposes, by L. L. Middleton, 1207 Grand avenue, president.

Oklahoma

OKLAHOMA CITY—Snetcher & Pittman Inc., owners of oilfield machine shops, have established a shop at Henderson, Tex., in charge of P. R. Snetcher.

Texas

AMARILLO—Automotive Electric Co. has been incorporated with $17,000 capital to operate a machine shop, by L. J. Symmonds, 309 West Sixth street, president and manager.

DALLAS—Art Sheet Metal & Model Works, 208 Henry street, has installed machinery for light machine shop work. V. Kraft is manager and superintendent.

Wisconsin

MILWAUKEE — Allis-Chalmers Mfg. Co., West Allis, will build a shop addition 49x69 feet. Contract to Meredith Bros. Co., 121 East Washington street.

OSHKOSH—Oshkosh Motor Truck Inc. has taken a contract from the federal government for ten four-wheel-drive trucks, sufficient for two months production.

TWO RIVERS — Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has been awarded contract for a complete switchboard equipment for the new municipal diesel generating plant, at $22,940.

Minnesota

MINNEAPOLIS — General Electric Realty Co., 120 Broadway, New York, is building for lease to General Electric Co., Schenectady, N. Y., a 210 x 220-foot service shop and office building at Second street and Washington avenue south.

Dominion of Canada

TORONTO, ONT. — Frigidaire Corp., Dayton, O., has established a branch plant on Frazer avenue for manufacture of electric refrigerators for the Canadian market.

KITCHENER, ONT. — Automotive Air Brake Ltd. has been incorporated with $100,000 capital and 100,000 shares no par value to manufacture air brakes and air compressors, by William S. Gurton, Kitchener.

OSHAWA, Ont. — International Cooler Corp. of Canada Ltd., headquarters in Toronto, Ont., is establishing a plant for manufacture of milk coolers and refrigerating equipment. John T. Gowan is manager.

New Trade Publications

LUBRICATION—Acheson Oildag Co., Port Huron, Mich., has issued a technical bulletin on its colloidal-graphited lubricants for uses where conditions are severe for plain oil or grease.

AIR CONDITIONING — American Rolling Mill Co., Middletown, O., in its architectural bulletin No. 8 illustrates the methods employed to furnish conditioned air for the Louisiana state capital.

SQUARING SHEARS—Bulletin No. 71D by the Niagara Machine & Tool Works, Buffalo, N. Y., is devoted to its power squaring shears in several series. Illustrations show the various types of shear and tables present data in concise form.

POWER DRIVE EQUIPMENT—Hill Clutch Machine & Foundry Co., 6400 Breakwater avenue, Cleveland, is distributing its catalog 29-A. It lists shafting, collars, shaft couplings, jaw clutches and many styles of bearings for vertical, horizontal and agitator shafts. The company's oil film bearing is also featured, in rigid and ball and socket mountings.